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DISEASES CAUSED BY BACTERIA AND FUNGI

DUCCI, E. & ROSATELLI, F. (1959). Nota terapeutica: la gangrena dell'ala. [**Treatment of wing gangrene.**]—*Gazz. Vet., Milano* No. 1. pp. 10-11. **3690**

On the assumption that wing gangrene is caused by *Staphylococcus pyogenes* two infected flocks were treated with "Trisulfan" (consisting of sulphadimidine, sulphadiazine and sulphamerazine). Mortality, which was about 3% in each group, ceased completely 3 days after treatment. Healthy birds kept in contact with diseased and recovered birds were unaffected.—T.E.G.R.

NORTH, E. A. (1958). Adverse effect of filtration on the immunizing power of staphylococcal toxin and toxoid.—*Aust. J. exp. Biol. med. Sci.* **36**, 547-554. [Author's summary modified.] **3691**

Filtration of staphylococcal toxic supernatants (unfiltered toxins) and of staphylococcal toxoids reduces the content of protective antigen. Seitz filtration is definitely more harmful than filtration through sintered glass or membrane filters. Filtration of toxin probably results in a proportionately greater loss of its protective factor than of its lethal factor and alpha-haemolysin. The implications of these findings as regards the active immunization of man and the production of more effective anti-sera in horses are discussed.

PEDERSEN, P. S. (1959). Bakteriologisk mastitisdiagnostik. Om anvendeligheden af en direkte udsædsmetode til rutinemaessig undersøgelse. [**Bacteriological diagnosis of mastitis: a direct inoculation method for routine examinations.**]—*Nord. VetMed.* **11**, 1-32. [In Danish. Summaries in English and German.] **3692**

Hovmand (1952) [*Nord. VetMed.* **4**, 901] had described a modification of the "CAMP" test for streptococcal mastitis in which, after

inoculation with the milk sample, the blood agar plates are inoculated in a restricted zone with a sterile metal stamp which has been impressed on a Petri dish of culture of β -toxin-producing staphylococcus. The present author further modified the technique by inoculating the plates (before inoculation with the milk sample) with the β -toxin itself in meat juice-peptone broth; absorption of the toxin occurs in 20-30 min. in a special drying chamber under sterile conditions. 0.05 ml. of the milk sample is then streaked onto the substrate, the plates being incubated for 20-24 hours.

—F.E.W.

HENNINGSON, R. W. (1959). Biochemical differentiation of Group A and 'Human C' *Streptococci*.—*Nature, Lond.* **183**, 182. **3693**

Most streptococci are satisfactorily differentiated by relatively simple biochemical methods. Among the exceptions are *Streptococcus pyogenes* (Group A) and the 'Human C' streptococcus (Group C). Details are now given of the preparation of raw milk serum medium and culture technique by means of which the two organisms are readily differentiated.—E.V.L.

RENK, W. (1959). Zur Pathologie der Milchsekretions- und Abflussstörungen. [**Pathology of milk secretion and excretion.**]—*Berl. Münch. tierärztl. Wschr.* **72**, 41-44 & 64-66. [Summary in English.] **3694**

The following factors affecting milk yield were described and discussed: (1) agalactia of single quarters which is of hereditary origin or, more often, due to chronic inflammatory processes, (2) reduced milk flow, congenital (teat wall too thick, cistern lumen too narrow or teat duct too long) and acquired (injuries, chronic udder oedema and udder inflammation), (3) mastitis caused by infectious agents.—M.G.G.

MURNANE, D. & MUNCH-PETERSEN, E. (1959). Attempts at elimination of *Streptococcus agalactiae* from three infected herds by the use of penicillin.—*Aust. vet. J.* **35**, 242-247. [Authors' summary modified.] **3695**

In a closed herd in which good milking hygiene was practised, prompt penicillin treatment was given to all quarters in which *Str. agalactiae* was detected by bacteriological examination of milk at monthly intervals over 11 months. Incidence was reduced to a low level for a long period but this method failed to eliminate infection completely.

This and another herd were subjected to treatment with penicillin of all quarters of all cows and a third herd to the same treatment supplemented by culling and intensive disinfection measures. Again infection was minimized for a lengthy period but not completely eliminated.

A possible reason for these failures was the re-introduction of infection from the environment, such as external surfaces of the udder, milkers' hands, shed utensils and fittings.

MARTIN, A. R. (1959). A technique for studying the action of antiseptics on bacteria in subcutaneous tissues, with special reference to chlorhexidine.—*J. clin. Path.* **12**, 48-51. **3696**

A small but lethal volume (0.05 ml.) of a suspension of streptococci was inj. s/c into anaesthetized mice. After a delay of 20 min. 0.2 ml. of antiseptic soln. was injected into the same site as the bacteria. Efficacy of an antiseptic was measured by the number of survivors from ten inoculated mice. Under those conditions chlorhexidine compared favourably with several other antiseptics.

—R.M.

WEINHOLD, E. (1959). Untersuchungen über vom Tier stammende Staphylokokken unter besonderer Berücksichtigung ihrer Pathogenität. [Pathogenicity of staphylococci of animal origin.].—*Zbl. VetMed.* **6**, 90-97. [Summaries in English, French and Spanish.] **3697**

Of staphylococci from domestic animals (443 strains), from milk samples (1,314 strains) and sausages, 133 strains were regarded as pathogenic because they produced coagulase and phosphatase. Pathogenic strains were isolated from 17% of the apparently normal milk samples. None produced enterotoxin. It was not possible to divide mastitis strains into pathogens and non-pathogens by cross-agglutination tests with immune serum prepared in rabbits.—R.M.

NEGRETTI, F. (1958). La prova all'antiformina nella diagnosi della mastite bovina. [The antiformin test for diagnosis of bovine mastitis.].—*Atti Soc. ital. Sci. vet.* **12**, 654-657. [Summaries in English and French.] **3698**

This is a modification of the Whiteside test, antiformin being substituted for NaOH. The number of positive results was 13.2% higher and a comparative clinical, cytological and bacteriological study of 500 antiformin-positive and Whiteside-negative results confirmed the greater diagnostic value of the antiformin test.—T.E.G.R.

SNEATH, P. H. A. & BUCKLAND, F. E. (1959). The serology and pathogenicity of the genus *Chromobacterium*.—*J. gen. Microbiol.* **20**, 414-425. [Authors' summary modified.] **3699**

Mesophilic strains of *Chromobacterium* cross-agglutinated extensively, and much of this appears to be due to common rough somatic antigens. The psychrophilic strains also cross-agglutinated to some extent. There was little cross-agglutination between mesophils and psychrophils. Neither mesophils nor psychrophils showed clear-cut antigenic subgroups. Many mesophilic strains, whether isolated from natural infections or from water, were virulent for experimental animals. The most virulent were strains from two cases of human infection, which had an LD₅₀ for g.pigs of about 5×10^6 viable organisms. The virulent strains did not form a homogeneous antigenic group. Cultures of mesophils contained an endotoxin, but no exotoxin was found. The experimental disease may be an acute, rapidly fatal septicaemia, or more chronic with multiple abscess formation like that found in natural infections; occasionally a local abscess with subsequent recovery was the only result of the injection of cultures.

POPOVIĆ-SABO, M. (1959). Rezistencija i sedimentacije eritrocita kod eksperimentalnog antraksa ovaca. [Resistance and sedimentation rate of erythrocytes from sheep with anthrax.].—*Veterinaria, Sarajevo* **8**, 73-75. [In Croat. Summary in English.] **3700**

Resistance to haemolysis in hypotonic saline of r.b.c. from 15 sheep experimentally infected with anthrax, decreased 18 hours after infection. Before death it fell to 43.7% of the normal value. The sedimentation rate began to increase six hours after infection, reaching 109.3 ± 2.3 mm. before death, as compared with 8.5 ± 0.2 mm. before infection.—E.G.

MAHONEY, D. F. (1959). **Tuberculosis in beef cattle in North Queensland.**—*Aust. vet. J.* **35**, 110-116. **3701**

In North Queensland at least half the beef herds are infected with TB. The incidence on any individual property rarely exceeded 5%.

The difficulties of control are described—the size of the properties (up to 300 sq. miles), the paddock size, the lack of yards and the shortness of the season in which cattle can be worked. The labour involved is well illustrated in the description of the programme in three herds where eradication was attempted.

—N. WICKHAM.

SMITH, W. S. (1959). **Tuberculosis in beef cattle in South Australia.**—*Aust. vet. J.* **35**, 116-119. **3702**

Cattle from South Australia, the Alice Springs district of Northern Territory and South West Queensland are killed at the Adelaide abattoirs. Abattoir figures for the past five years show that, with one exception, all stations are infected with TB. The problems in control by test and slaughter are discussed in relation to one property, on which over 11,000 cattle were tested, and 2,000 reacted. The major difficulties were communication (the property was 1,000 miles from Adelaide, mustering over an area of 4,000 sq. miles), manpower, disposal of reactors and the time involved (7 months). The author doubts that the removal of reactors would reduce the incidence of the disease, as the prolonged close contact and distress associated with testing would probably result in a great number of new infections.—N. WICKHAM.

CORSICO, G. & COLOMBO, S. (1958). Alcuni aspetti morfopatologici della mastite tubercolare bovina. [**Pathological aspects of tuberculous mastitis in cows.**]—*Atti Soc. ital. Sci. vet.* **12**, 369-373. [Summaries in English and French.] **3703**

The gross and histological lesions of tuberculous mastitis in cows are described and discussed.—T.E.G.R.

ULLMANN, G. & SCHOLZ, J. (1959). Zur Diagnostik der Tuberkuloseinfektion des Rindes mit Typus humanus. [**Diagnosis of tuberculosis in cattle caused by human-type bacilli.**]—*Rindertuberk. u. Brucellose* **8**, 7-16. **3704**

Repeated tuberculin tests in cattle exposed to natural infection with human type tubercle bacilli revealed first a sharp increase in reactivity reaching a peak 8-10 weeks after infection, followed by a more gradual decrease

giving doubtful reactions 6 months later, which became negative after a further 3 months. This is considered to be typical for infection with human type bacilli. It is recommended that, when reactions to tuberculin appear in attested herds, the test should be repeated every 8 weeks. A diagnosis of infection with human type bacilli can be made if such a curve of reactivity is found, and/or further cattle give positive reactions which later decline in intensity. Examples are given of herds where the cause of positive reactions was correctly suspected to be an infected human being.

—M.G.G.

FINZI, G. (1959). Sul valore diagnostico della "esotubercolina Finzi" e "sulle reazioni tardive alla esotubercolina" nei bovini. [**Diagnostic value of "Finzi exotuberculin"; delayed reactions in cattle.**]—*Profilassi* **32**, 1-9. **3705**

G. Canestrari, in *Progr. vet.* **18**, 708 (1958), reported delayed reactions (4 days or more) to the intrapalpebral test with "Finzi exotuberculin", especially in old cattle. He, therefore, recommended examination for reactions 4-5 days after inoculation. In his present article, F. discusses tuberculin reactions and the original recommendations regarding their interpretation and course of development: in tuberculous cattle a local reaction appears 8-10 hours after inj. and all positive reactions reach their maximum intensity at the 35th-40th hour, occasionally towards the 80th hour.—T.E.G.R.

NAI, D. D. & CRESPI, A. (1958). Sulla negativizzazione della reazione tubercolinica nei bovini trattati con isoniazide. [**Effect of isoniazid on the tuberculin reaction in cattle.**]—*Atti Soc. ital. Sci. vet.* **12**, 640-643. Discussion: pp. 643-646. [Summaries in English and French.] **3706**

Isoniazid was administered to 127 tuberculin positive cattle i/m or *per os* at an initial dose of 4-5 mg./kg., later raised to 10 mg./kg. Treatment by the i/m route was carried out daily for 15-day periods, with intervals of 15 days, until the tuberculin reaction was negative; treatment by the oral route was uninterrupted. Positive reactions persisted in 25.9% even after 15-18 months of treatment; in 19.4% negative reactions ensued and were followed by positive reactions many of which later became definitely negative after further treatment; in favourable cases (54.5%) nega-

tive reactions were obtained after 3-6 months' treatment and both routes of administration were equally effective.—T.E.G.R.

GASPARINI, G., RONCALLI, R. & FRANCA, L. (1959). Azione della cocarbossilasi e di alcuni steroidi sulla intradermoreazione tubercolinica nei bovini affetti da tubercolosi. [Effect of cocarboxylase and steroids on the intradermal tuberculin reaction in tuberculous cattle.]—*Arch. Vet. Ital.* **10**, 29-34. [Summaries in English, French and German.] **3707**

The effect of cortisone, prednisolone, prednisone and of cocarboxylase, alone or in combination with individual steroids, on the tuberculin reaction was studied in 28 tuberculous cattle. Results were not statistically significant.—T.E.G.R.

TAPPI, V. & ROGNA, M. (1958). Ricerche istologiche su linfonodi muscolari, anormali, esenti macroscopicamente da lesioni specifiche ed appartenenti a bovini affetti da varie forme di tubercolosi. [Non-specific changes in lymph nodes of tuberculous cattle.]—*Atti Soc. ital. Sci. vet.* **12**, 489-493. [Summaries in English and German.] **3708**

The prescapular lymph nodes of 25 slaughter cattle with various forms of TB. were enlarged, juicy on section and dotted with reddish spots on the outer surface. The histological changes observed are considered non-specific and tubercle bacilli were not demonstrable.—T.E.G.R.

HARNACH, R. (1959). Výzkum o desalergisaci TBC skotu biopreparátem FTA a jeho vlivu na vlastní proces. [Use of fermented antigen in bovine tuberculosis.]—*Sborn. vys. Šk. zemědělsk. les. Fak., Brno, Ser. B.* **7**, Nos. 1-3. pp. 187-197. [In Czech. Summary in Russian.] **3709**

Bovine tuberculin, deprived of its allergenic, but not antigenic properties by fermentation for four weeks with *Saccharomyces* and similar micro-organisms [*V.B.* **21**, 2826] was used successfully in the treatment of TB. in g.pigs and over 500 cattle. Weight gains in treated cows averaged 0.304 kg./day, as compared with 0.136 kg./day in controls. Similar experiments were carried out with fermented avian type tuberculin in 252 fowls. Eight reactor calves, immunized with B.C.G. were given three s/c injections of fermented antigen, and although allergic reactions subsided, they retained immunity for over one year in an infected environment.—E.G.

WACHNIK, Z. (1959). Allergic reaction and allergometry investigations in the course of swine-tuberculosis. — *Proc. XVIIth Int. vet. Congr., Madrid* **2**, 693-694. **3710**

Experimentally, young pigs were highly susceptible to the bovine type of tubercle bacillus, which produced coagulative lesions, and moderately susceptible to the human type which produced necrotic and proliferative lesions, and to the avian type which produced only proliferative lesions especially in the liver. The intradermal tuberculin reaction was most marked 3-9 weeks after infection and was best performed in a skin fold behind the upper part of the ear, 100% increase in thickness in 24-96 hours being considered positive. Reactions were slower in developing and weaker after oral administration. The method of allergometry described by Copello and Conte gave an indication of the course of the disease; that of Groer did not.—A. ACKROYD.

IPPEN, R. (1959). Zur vergleichenden Pathologie der Tuberkulose der Nagetiere. [Pathology of tuberculosis in rodents.]—*Dtsch. tierärztl. Wschr.* **66**, 42-47. [Summary in English.] **3711**

The susceptibility of rabbits, g.pigs, rats, mice and hamsters to TB. is reviewed briefly, and the differences in the course, organs affected, and histological lesions are summarized. A histological study was made of the lesions in 6 hamsters which died 12-13 weeks after i/p infection.—M.G.G.

DEGOMMIER, J. (1959). Fluorescence et acid-alcool-résistance relative du bacille tuberculeux. [Fluorescence and relative acid-fastness of tubercle bacilli.]—*Ann. Inst. Pasteur* **96**, 723-733. [Summary in English.] **3712**

The Ziehl Neelsen stain does not give a clear distinction between acid-fast and non-acid-fast bacilli. While the majority of organisms in a smear are red a certain number of others take the stain differently and some may appear pale pink. These weakly acid-fast bacilli, which may be young organisms, are picked out by fluorescence and it is considered that this method might be adopted to the total exclusion of the Ziehl Neelsen technique.

—T.E.G.R.

KOROL'KO, V. (1959). [Spontaneous recovery of cattle from Johne's disease.]—*Veterinariya, Moscow* **36**, No. 6 p. 32. [In Russian.] **3713**

An outbreak of enteritis among cows on a

sugar-beet farm was associated with a large number (115 in one year, 76 in the next) of positive reactions to avian tuberculin. 100 of the reactors were isolated and acid sugar-beet pulp was withheld from the ration. After a year 53 did not react to avian tuberculin and after 2 years 67 did not react. This was taken as evidence of spontaneous recovery. [There was no mention of pathological, serological or bacteriological examinations to confirm the diagnosis of Johne's disease, nor of clinical recovery of the cows isolated.]—R.M.

ARONSON, J. D. & KRAUS, W. (1959). The correlation of the reaction to protein from certain mycobacteria (paratubercle bacilli) with the reaction to tuberculin (OT).—*Amer. Rev. Tuberc.* **79**, 731-737. [Summaries in French and Spanish. Authors' summary modified.] **3714**

Protein fractions from cultures of certain "paratubercle bacilli" [acid-fast bacteria excluding tubercle bacilli and *Mycobact. johnei*] isolated from human pulmonary lesions show marked variations in antigenicity, varying from 0 to 96% positive reactions. The thermostability of the skin-reacting material varies with the different mycobacteria.

Simultaneous tests with O. T. and protein from different "paratubercle bacilli" indicate some common antigenic relationship between typical tubercle bacilli and certain of the "paratubercle bacilli", including some chromogenic mycobacteria.

PEPYS, J., AUGUSTIN, R. & PATERSON, A. B. (1959). Common antigenic components of mycobacterial extracts.—*Tubercle, Lond.* **40**, 163-172. [Authors' summary modified.] **3715**

Protein and polysaccharide preparations from mycobacteria and human and rat lepromins, have been studied by agar-gel diffusion for components capable of reacting with a rabbit antiserum produced by injection of killed *M. tuberculosis* H37Rv in Freund's adjuvant.

Three common precipitating antigens were found in the PPD's of *M. tuberculosis*, human, bovine and avian strains, *M. johnei*, *M. phlei*; and human lepromin.

Tests with proteolytic digests of the PPD preparations of *M. tuberculosis*, human and bovine and *M. johnei*, and carbohydrate stains of the agar-gel precipitation lines suggest that polysaccharide components were responsible for the precipitation lines.

JOUBERT, L., OUDAR, J. & VALETTE, L. (1958). Mammite enzootique récidivante de la brebis à *Corynebacterium pseudotuberculosis* (bacille de Preisz-Nocard) atypique. Sur l'évolution des bactéries animales du genre "Corynebacterium". [Recurrent endemic mastitis in sheep due to atypical *Pasteurella pseudotuberculosis*.]—*Bull. Soc. Sci. vét. Lyon* **60**, 181-194. **3716**

Acute non-gangrenous mastitis in a flock was associated with an organism which resembled *Past. pseudotuberculosis* rather than *Corynebact. pyogenes*, although it had some properties common to both.—R.M.

MOUSTARDIER, G., DULONG DE ROSNAY, C. & SALVAT, J. (1959). Étude de la sensibilité aux antibiotiques d'une souche de bacille de Whitmore. [Sensitivity of *Pfeifferella whitmori* to antibiotics.]—*Ann. Inst. Pasteur* **96**, 697-701. [Summary in English.] **3717**

A strain of *Pf. whitmori* isolated from a man repeatedly treated with antibiotics was tested *in vitro* for its sensitivity to antibiotics. Chloramphenicol, novobiocin and the tetracyclines were the most effective. Although the patient had had prolonged treatment with sulphonamides, chloramphenicol and tetracycline the causal organism did not, at any stage of the disease, develop resistance to antibiotics.—T.E.G.R.

LEBDUŠKA, J. & PLHOŇ, M. (1959). Vliv protičervenkového séra na účinnost procainu penicilinu G *in vitro*. [Influence of swine erysipelas serum on the effect of procaine penicillin G.]—*Sborn. vys. Šk. zemědělsk. les. Fak., Brno, Ser. B.* **7**, Nos. 1-3, pp. 219-237. [In Czech. Summaries in German and Russian.] **3718**

It was suggested that the reduction of the effect of procaine penicillin G *in vitro* against β -haemolytic streptococci by 3 of 32 swine erysipelas and normal serum samples was probably due to the accidental presence of penicillinase in the serum. When therefore in practice both serum and penicillin are to be given simultaneously, they should be injected at different sites.—E.G.

GRMOVŠEK, P. (1959). Transportna groznica. [Shipping fever in cattle in Yugoslavia.]—*Vet. Glasn.* **13**, 543-545. [In Croat. Summary in English.] **3719**

More than half of 76 slaughter cattle fell ill during shipment from Yugoslavia to Italy. Eleven died and eight were slaughtered on

board ship. *Pasteurella septica* was isolated from the lungs of three animals. Surviving, affected cattle were kept in quarantine for the rest of the journey, treated with streptomycin and sulphadimidine and recovered before reaching their destination.—E.G.

MRÁZ, O., LAX, T. & HAMŠÍK, V. (1959). Případ infekční mastitidy u ovcí vyvolaný zárodkem *Pasteurella multocida*. [**Mastitis in sheep caused by pasteurella.**] — *Sborn. vys. šk. zemědělsk. les. Fak., Brno, Ser. B. 7*, Nos. 1-3. pp. 199-217. [In Czech. Summaries in German and Russian.] **3720**

A pasteurella differing from *Past. septica* mainly by its marked pathogenicity for the ovine udder and its non-pathogenicity for mice when injected s/c, was isolated from the udder of two ewes with unilateral mastitis, with abscesses in the subcutis and parenchyma. Various forms of mastitis were diagnosed in another 18 ewes after subsequent examination of the whole flock consisting of 127 ewes, 129 lambs and 4 rams. Pure cultures of *Staphylococcus pyogenes albus* were isolated six times, mixed cultures of *Staph. pyogenes* and α -haemolytic streptococci twice, mixed cultures of *Corynebact. pyogenes* and an unidentified Gram-negative organism twice, and mixed *Corynebact. pyogenes* and an organism of the paracolon group, identified as *Paracolonobacterium intermedium*, once. Lambs exposed to natural infection remained healthy. In lactating ewes the disease was reproduced by intramammary infection with the organism. Lambs and a non-lactating ewe remained healthy after intranasal, intratracheal and i/v infection.—E.G.

CORRIAS, A. & MOLINARI, G. (1958). Grave infezione da *Pseudomonas aeruginosa* in un gruppo di tori adibiti alla fecondazione artificiale. [**Pseudomonas infection in bulls at an artificial insemination centre.**]—*Atti Soc. ital. Sci. vet.* **12**, 243-248. Discussione: p. 248. [Summaries in English, French and German.] **3721**

An account is given of an outbreak of pseudomonas infection ascribed to unhygienic conditions at the artificial insemination centre. The affected bulls, which had balanitis and balanoposthitis, recovered 1-2 weeks after local treatment with neomycin solution.

—T.E.G.R.

SNOECK, G. (1959). Puerperale stoornissen bij de zeug. [**Puerperal disorders in sows.**] — *Vlaams diergeneesk. Tijdschr.* **23**, 54-58. [In

Flemish. Summaries in English, French and German.] **3722**

Continuing the work of Vervloesem [V.B. **28**, 3784] S. found that in sows with puerperal septicaemia, *Escherichia coli* could be recovered from the uterus on the 3 days after parturition, but not after 6, 14 or 30 days. In some sows encapsulated abscesses were found in the udder at slaughter 30 days after parturition, and *E. coli* was among the organisms isolated. Although untreated sows recovered within 3-6 days, treatment with oxytocin and antibiotics hastened recovery and udder abscesses were less common. Blood samples from septicaemic sows 5 days after parturition revealed lymphopenia and an increase in polymorphonuclear neutrophils. No differences were found in the chemical composition of blood from healthy and septicaemic sows.—R.M.

TAYLOR, J. (1959). *Escherichia coli* as an enteropathogen.—*Zbl. Bakt. I. (Orig.)* **174**, 357-363. [In English.] **3723**

A review from the Salmonella Reference Laboratory in London, with reference to infections in farm animals.—R.M.

QUINCHON, C., HENRY, M. & HENRY, G. (1959). Propriétés biochimiques des germes coliformes hémolytiques isolés au cours du syndrome entérotoxique colibacillaire du porcelet. [**Biochemical properties of haemolytic coliform organisms isolated from piglets with enterotoxaemia.**]—*Ann. Inst. Pasteur* **96**, 765-770. [Summary in English.] **3724**

The biochemical properties of 27 strains of haemolytic coliform organisms isolated from pigs with enterotoxaemia were studied. All the strains possessed properties which identified them as *E. coli*; 16 of them were urease-positive.—T.E.G.R.

NETER, E., COHEN, E., WESTPHAL, O. & LÜDERITZ, O. (1959). The effects of proteolytic enzymes on agglutination by bacterial antibodies of lipopolysaccharide modified erythrocytes.—*J. Immunol.* **82**, 85-93. [Authors' summary modified.] **3725**

Sheep r.b.c. were modified with *E. coli* lipopolysaccharide and then treated with trypsin, chymotrypsin, protease, ficin or papain. Homologous *E. coli* immune serum agglutinated them to the same extent as r.b.c. not treated with enzymes. Enzyme treatment, however, enhanced agglutination by serum immune to sheep r.b.c. (amboceptor). It is postulated that r.b.c. from certain cold-

blooded animal species, in contrast to those from sheep and man, have on their surface a protein or protein-like material which interferes with the spatial orientation of bacterial antibodies and subsequent haemagglutination, and that certain proteolytic enzymes remove or alter this inhibitor.

I. KAUFFMANN, F. (1959). On the principles of classification and nomenclature of Enterobacteriaceae.—*Int. Bull. bact. Nom. Taxon.* 9, 1-6. 3726

II. KAUFFMANN, F. (1959). Definition of genera and species of Enterobacteriaceae. Request for an opinion.—*Ibid.* 7-8. 3727

I. K. proposed that serological types of members of the family Enterobacteriaceae warranted the status of species; the concept that a species was a biochemically defined subdivision of the genus should be abandoned. A classification of the family is given.

II. K. requested the International Committee on Bacteriological Nomenclature to give an opinion on the proposal that the species of Enterobacteriaceae are the established serotypes, and that the genera are groups of related species.—R.M.

OKONOGI, T., FUKAI, K., MITSUHASHI, S., NAGAI, M. & KAWAKAMI, M. (1959). Studies on the experimental typhoid. III. Histopathological study of the mice liver infected with virulent or attenuated *S. enteritidis* strain.—*Jap. J. exp. Med.* 29, 71-77. [In English.] 3728

Microscopic nodular liver lesions occurred after infection of mice with virulent *Salmonella enteritidis*. Nodular lesions were also found in mice inoculated with an attenuated strain of the organism or a chrome-alum vaccine prepared from it, but they differed in appearance from the nodules associated with infection. The difference in reaction may explain the different duration of immunity after infection and after immunization.—R.M.

I. QUESADA, A. & CALAPRICE, A. (1958). Il ruolo del gallo nella diffusione della pullorosi. Nota II: Prove di trasmissione diretta dell'infezione da gallo naturalmente infetto alle galline sane. [Role of the cock in the transmission of pullorum disease. II. Transmission experiments.] — *Atti Soc. ital. Sci. vet.* 12, 692-696. [Summaries in French and German.] 3729

II. QUESADA, A., CALAPRICE, A. & PEZZICA, G. (1958). Osservazioni sulla infezione pulloro-

tica sperimentale in galli adulti. [Experimental pullorum disease in adult cocks.] — *Ibid.* 696-698. [Summaries in French and German.] 3730

III. CERRUTI, C. G., TANGA, G. & CALAPRICE, A. (1958). Ricerche istologiche sull'infezione pullorotica cronica spontanea del gallo. [Histological changes in the testicles of fowls with chronic pullorum disease.] — *Ibid.* 698-700. [Summaries in French and German.] 3731

I. Hens did not contract the disease from naturally infected cocks whose seminal fluid contained *Salmonella pullorum*. Embryo and chick mortality were high but the organism was not demonstrable. The disease was not transmissible to hens by instillation of infected seminal fluid into the cloaca.

II. In a group of 5 cocks a culture suspension of *S. pullorum* was instilled into the cloaca and in a second group of 5 it was administered by mouth. In one bird from the first group and in 2 from the second blood culture was positive on the 10th day and agglutination titres were 1:10-1:40 until death, 30 days later. There were no characteristic P.M. findings but *S. pullorum* was isolated from the organs and testicles. The organism was not demonstrable in the semen of any of the birds and agglutination tests were consistently negative in the survivors.

III. In infected birds there was severe atrophy of the testicles which showed interstitial inflammatory lesions of the seminiferous tubules with absence of spermatogenesis.

—T.E.G.R.

PORTERFIELD, I. D., PETERSEN, W. E. & CAMPBELL, B. (1959). Antibody response of the bovine udder.—*Vet. Med.* 54, 1-4 & 11. 3732

Phenolized suspension of *Salmonella pullorum* was inoculated into the mammary glands (1-5 ml. in each quarter) of 7 dry and 5 lactating cows, and i/m or s/c in 3 cows. In the dry cows between 4 and 15 infusions were made at weekly intervals. Antibody content of milk (or colostrum) and blood serum was measured at intervals of hours, days or months after treatment. The authors concluded that infusions made in the dry period resulted in a higher content of antibody in colostrum than in serum; i/m or s/c administration of antigen during the dry period resulted in a lower content of antibody in colostrum and serum than that obtained by intramammary infusion; when lactating cows were infused with antigen, antibodies appeared in the milk within two

hours; high levels of antibody in milk and serum persisted for between 8 and 9½ months after immunization during the dry period.

—R.M.

I. WATANABE, S., HASHIMOTO, K. & KUME, T. (1958). [Studies on salmonella infection in hen's eggs during incubation with special reference to the mode of infection with *S. pullorum* and *S. senftenberg*. II. Transmission from infected hens to laid eggs.]—*Bull. Nat. Inst. Anim. Hlth, Tokyo* No. 36 pp. 1-9. **3733**

II. WATANABE, S., HASHIMOTO, K., KUME, T., MURATA, M. & SAKAZAKI, R. (1959). [Studies on salmonella infection in hen's eggs during incubation with special reference to the mode of infection with *S. pullorum* and *S. senftenberg*. III. Infection of embryonated eggs through the egg shell.]—*Ibid.* No. 37 pp. 47-60. **3734**

III. WATANABE, S., KUME, T., HASHIMOTO, K. & SAKAZAKI, R. (1959). [Studies on salmonella infection in hen's eggs during incubation with special reference to the mode of infection with *S. pullorum* and *S. senftenberg*. IV. Natural resistance of chick embryos.]—*Ibid.* No. 37 pp. 61-69. [In Japanese. Abst. from English summaries.] **3735**

I. The best method for identifying *S. pullorum* in infertile incubated eggs was indirect cultivation: inoculation first into yeast broth then transfer to McConkey plates after 24 hours. Attempts to recover *S. senftenberg* from 141 embryonated eggs from 8 hens experimentally infected with this organism were unsuccessful.

II. Smearing cultures of both types of salmonella onto the shell of eggs during the first 12 days of incubation was frequently followed by invasion of the embryo. Therefore the *S. senftenberg* infection of eggs recorded in the first part of this series [*V.B.* 24, 1009] was caused by external contamination and not within the hen.

III. Intravascular inoculation of *S. pullorum* into eggs incubated 10-16 days was always lethal and the minimum lethal dose was 10^{-8} ml. of a suspension of organisms prepared by diluting 18-hour broth cultures 1 in 10 with broth saline. Embryos were more resistant to *S. senftenberg* and while the lethal dose for an embryo incubated 10 days was 10^{-7} ml., it was 10^{-5} for 14-day embryos.—R.M.

GRABAR, J. (1959). Action sur les tissus de la souris de certains vaccins, préparés avec des souches de *Salmonella* pathogènes et non pathogènes pour cet animal. [Reaction of

tissues and organs of mice to vaccines prepared from pathogenic and non-pathogenic salmonella.]—*Ann. Inst. Pasteur* 96, 577-590. [Summary in English.] **3736**

Histological changes in organs of mice killed 6 days after inoculation with any of several heat-killed salmonella vaccines were in the nature of non-specific reactions to a toxic agent: in the liver there was increase in volume of Kupffer cells and endothelial cells. Reaction to a live vaccine prepared from a rough strain of *S. typhi* was similar (in the liver and in Peyer's patches of the intestine) to the specific reaction caused by pathogenic salmonella.—R.M.

WELLMANN, G. & LIEBKE, H. (1959). Experimentelle Untersuchungen über die Möglichkeit der Brucelloseübertragung durch Ochsen. [Experimental studies on the possible transmission of brucellosis by bullocks.]—*Zbl. VetMed.* 6, 380-391. [Summaries in English, French and Spanish. English summary modified.] **3737**

Eight bullocks were inoculated by various routes with moderate doses of *Br. abortus*. Serological titres were positive in some animals 14 days after infection, but became negative after 6-14 weeks. In three animals, despite a slight rise, the titre remained below the accepted positive level throughout.

In 6 bullocks it was possible to detect the organism in the blood on one or more days at various intervals. The organism was found in the blood, or in one case in the lymph nodes, although the titre had become negative or had never reached a positive level.

The demonstration of the organism in the blood of these moderately infected bullocks was only possible culturally and never by inoculation of g.pigs.

The transmission of infection to pregnant heifers by contact was not detected but the theoretical possibility of transmission to healthy cattle nevertheless exists.

JACOB, K. (1959). Zur Pathologie des brucellennausscheidenden Rindereuters. I. Mitteilung. [Excretion of brucella and pathology of the bovine udder. I.]—*Zbl. VetMed.* 6, 68-81. [Summaries in English, French and Spanish.] **3738**

J. examined histologically the udders from 25 cows which were secreting *Br. abortus* in the milk before slaughter. There were no pathognomonic macroscopic changes in udder tissue or in milk. Histologically, mastitis due to brucella was non-purulent, proliferative and

interstitial, partly diffuse and partly granulo-matous, with a tendency to extend into glandular tissue.—R.M.

FERENČÍK, M. (1959). Chromatografia peptidov a aminokyselín nachádzajúcich sa v brucelových alergénoch. [**Chromatography of peptides and amino-acids in brucella allergens.**] — *Vet. Cas.* **8**, 364-371. [In Slovak. Summaries in English, French, German and Russian.] **3739**

Standardization of brucella allergens by chromatographic analysis of peptide fractions and amino-acids in various batches was described. In hydrolysates of allergens 22 amino-acids were demonstrated.—E.G.

KAMAL, A. M. (1959). [Studies on the cultivation of *Brucella abortus* in the developing chick embryo. II. Study of an egg-passage strain, inoculation with rough and mucoid forms, and histology of infected tissues.] — *Zbl. Bakt. I. (Orig.)* **175**, 81-97. [In English. Summaries in French, German, Spanish and Russian. Author's summary modified.] **3740**

Repeated egg-to-egg transfers do not alter the colonial form of growth and agglutinability of *Br. abortus*, but increase its virulence for both chick embryos and mice.

Rough and mucoid forms of *Br. abortus*, which are of extremely low virulence, or avirulent, for the natural hosts and normal experimental animals, are highly virulent for developing chick embryos.

The histology of the infected embryonic organs and extra-embryonic membranes was investigated. The organism could invade the cells of the three primary germ layers. It was usually found intracellularly, but in some instances extracellularly. Practically all the cells of some organs, e.g. liver and kidney, are invaded. The response of the different tissues to the bacterial invasion was also studied.

MARKENSON, J., SULITZEANU, D. & OLITZKI, A. L. (1959). Immunizing properties of insoluble cell material derived from *Brucella*. — *Nature, Lond.* **183**, 1693. **3741**

Br. abortus and *Br. suis* bacteria were killed and dried with acetone, disintegrated in a sonic oscillator and centrifuged at 10,000 and again at 40,000 r.p.m. to yield two fractions, F1 and F2 respectively, the second consisting of finer particles. When compared in mice, these fractions had a higher immunizing capacity than that of whole cells, and F2 was more effective than F1. It is likely that these insoluble fractions are cell wall material. This

has previously been found to be a good antigen and it has been suggested that some of the activity shown by the cell wall may be non-specific: this is now being investigated experimentally.—E.V.L.

HOFFMAN, G. (1958). Behandlungsversuche gegen die Rinderbrucellose mit dem Versuchspräparat SR 692 (Pecudin) und Debenal (Sulfapyrimidin) "Bayer" an künstlich infizierten Rindern bei gleichzeitiger Beobachtung des Blutbildes. [Treatment with "Pecudin" (N'-dichloroacetyl-N'-phenylsemicarbazide) and sulphadiazine of cattle experimentally infected with brucellosis.] — *Inaug. Diss., Hanover* pp. 52. **3742**

Five 2-years-old heifers were infected with *Brucella abortus* in the 2nd-4th month of pregnancy. Four were treated until calving or abortion as follows: (1) 5 g. daily of "Pecudin" [see *V.B.* **29**, 1327]; (2) 30 g. daily of "Pecudin", 5 days of treatment being followed by a week without treatment; (3) 5 g. of "Pecudin" and 5 g. of sulphadiazine daily; (4) 20 g. of "Pecudin" and 20 g. of sulphadiazine daily for periods of 5 days with weekly periods without treatment. Treatment was peroral and began a week before infection in the first and third animals and a week after infection in the second and fourth. The fifth was not treated. The animals were again infected with *Br. abortus* 1½ months after the first infection. Animal (2) and the control aborted and brucella was recovered from the placentas and foetuses.

Milk and blood titres were positive in these 2 animals, and negative in the 3 that calved normally, except for a temporary rise 17 days after first infection. It was concluded that continuous is better than intermittent treatment in the prevention of brucellosis. The white blood picture was followed during pregnancy and parturition.—M.G.G.

PELED, D. & LANDAU, M. (1958). [A survey of brucellosis in sheep and goats in Israel.] — *Refuah vet.* **15**, 168-170. [In Hebrew. Summary in English p. 194.] **3743**

In the last quarter of 1957, 91 flocks in all parts of Israel, comprising 24,304 sheep and 1,623 goats, underwent the allergic test for brucellosis. 56 flocks were free from brucellosis and 35 were infected. The percentage of reactors in infected flocks was low. Nearly all self-contained flocks were free from the infection, but most flocks consisting partly of sheep imported from Turkey were infected.

—M.G.G.

SELIVANOV, A. V. & KOSHUKOV, S. D. (1959). [Vaccinal reactions and immunity in sheep inoculated with Strain 19 conjunctivally or subcutaneously.]—*Veterinariya, Moscow* 36, No. 5 pp. 29-30. [In Russian.] 3744

In 21 sheep single doses of 10,000 million organisms of *Brucella abortus* Strain 19 were instilled into the conjunctiva; another 20 sheep received the same dose subcutaneously. The results of agglutination and c.f. tests at 14, 26 and 90 days were essentially similar. Sheep were killed for bacteriological and histological examination at intervals up to 6 months after inoculation; in neither group could Strain 19 be isolated later than 2 months. Morphological changes in organs were more pronounced and lasted longer in sheep inoculated s/c. When challenged after 38 days by s/c inj. of 300,000 organisms of *Br. melitensis*, 2 of 5 sheep inoculated conjunctivally resisted infection, two developed local infection and in one infection was confined to lymph nodes; 1 of 4 sheep inoculated s/c resisted infection and the other 3 developed generalized infection. No vaccinated sheep reacted to intradermal tests 26 days after vaccination and it was suggested that this test would serve to distinguish vaccinated from infected sheep.—R.M.

BÖRGER, K. (1959). Vorkommen von *Brucella melitensis*-Infektionen bei Milchkühen in Schleswig-Holstein. [Incidence of *Brucella melitensis* infection in dairy cows in Schleswig-Holstein.]—*Dtsch. tierärztl. Wschr.* 66, 261-263. [Summary in English.] 3745

Since 1956 *Br. melitensis* infection has been diagnosed in 5 herds of cattle in Schleswig-Holstein. The organism was isolated from milk, and from placentas and foetuses, and identified in biochemical and serological tests. The source of the infection is unknown, as brucellosis does not occur in sheep in this region. The course of the disease was followed in one herd by repeated serological tests of blood and milk. In the first test 68 of 134 animals were positive. Some of these were negative in subsequent tests, or were only occasionally positive. There were 32 abortions in 1955, and a few cows aborted a second time in 1956 or 1957. All had been vaccinated during calfhood with *Br. abortus* Strain 19. No human cases occurred in the attendants.—M.G.G.

JACOTOT, H. & VALLÉE, A. (1959). Sur un critère du pouvoir pathogène des brucelles. (Deuxième note.) [A criterion for pathogenicity of brucella.]—*Ann. Inst. Pasteur* 96, 54-59. [Summary in English.] 3746

From experimental infection of g.pigs with 22 strains of brucella (including some vaccine strains) the authors were able to confirm their previous work [V.B. 26, 2199] and that of Cruickshank [V.B. 27, 2002] that the duration of bacteraemia was directly related to the virulence of the strain.—R.M.

BELL, J. F., JELLISON, W. L., OWEN, C. R. & LARSON, C. L. (1959). Applicability of the Ascoli test to epizootic tularemia in wild rodents.—*J. Wildlife Mgmt* 23, 238-240. 3747

The thermoprecipitin test described by Ascoli was used for the diagnosis of tularemia in dead voles, collected in endemic and epidemic areas. Results obtained were confirmed in 77% by isolation of *Brucella tularensis*.—E.G.

I FARINA, R. (1958). Infezioni da *Leptospira hyos* e da *Leptospira pomona* nei suini in Toscana. [Leptospirosis in pigs in Tuscany.]—*Atti Soc. ital. Sci. vet.* 12, 581-584. [Summaries in English and French.] 3748

II. CAVRINI, C., MONDINI, S. & PINELLI, G. (1958). Indagine sulla diffusione della leptospirosi suina in provincia di Bologna. [Leptospirosis in pigs in Bologna.]—*Ibid.* 585-588. [Summaries in English and French.] 3749

I. First results of a survey of leptospirosis in pigs are reported. The only symptom was abortion, with an overall rate of 50%. Positive agglutination-lysis titres (for *Leptospira hyos* or *L. pomona*) were demonstrated in 33 of 65 sows (with or without a history of abortion) and in 6 of 7 boars; *L. hyos* was isolated for the first time, it is stated, in Italy.

II. Serum samples from 480 slaughter pigs were tested against 14 leptospiral antigens, with 17 positive results mostly for *Leptospira icterohaemorrhagiae*. None was positive for *L. hyos* or *L. pomona*. The causal organisms were not demonstrable (microscopically, culturally or biologically) in the kidneys of reactors.—T.E.G.R.

LANG, R. W. & MORSE, E. V. (1959). Serologic cross reactions among leptospirae observed with sera from animals infected with *Leptospira pomona*.—*J. Immunol.* 82, 471-476. [Authors' summary modified.] 3750

Sera from sheep, goats, pigs and g.pigs infected with *L. pomona* were examined for cross agglutination lysis reactions with *L. icterohaemorrhagiae* AB, *icterohaemorrhagiae* A, *canicola*, *sejroe* and *hebdomadis* antigens. *L. icterohaemorrhagiae* and *canicola* antigens were consistently agglutinated by sera from

infected sheep, goats and pigs. G.pig sera containing antibodies for either strain O or W did not agglutinate *L. icterohaemorrhagiae* AB cells to an observable level but did react with the A strain, and *L. canicola*. Reactions for *sejroe* or *hebdomadis* were not regularly demonstrated with sera from *pomona*-infected animals.

The possible significance of differences in the degree of cross reaction observed with sera from several animal species and of differences within a single animal species was discussed.

An anamnestic response was obtained in g.pigs infected with *L. pomona* strain O but not strain W upon challenge with any of the three cross reactive serotypes. Serum adsorptions were conducted on one sheep serum and two pig sera.

VAN DER HOEDEN, J. (1958). **Leptospiral infections in hedgehogs.**—*J. infect. Dis.* **103**, 225-238. 3751

Cultural and serological tests were performed on 92 hedgehogs from various districts in Israel. *L. canicola* was isolated from 13, and *L. grippo-typhosa*, *L. mini* and *L. ballum* each from one. Nine more were positive serologically, 3 for *L. grippo-typhosa* alone, one for *L. grippo-typhosa* and *L. autumnalis*, one for *L. grippo-typhosa* and *L. mini*, 3 for *L. mini*, and one for *L. canicola*. Slight interstitial nephritis was the lesion found most frequently, but most hedgehogs were free from pathological changes. *L. canicola* was isolated from ticks, *Rhipicephalus sanguineus*, taken from a hedgehog which itself was negative. Two young hedgehogs died after experimental infection with *L. mini*. It is considered that hedgehogs are one of the main reservoirs of *L. canicola* in Israel and that their ticks may be vectors.—M.G.G.

QUIN, A. H., HAAS, H. F. & FREEMAN, A. (1959). **Practitioner usage of rapid plate antigens for the field diagnosis of leptospirosis.**—*Proc. XVIth Int. vet. Congr., Madrid* **2**, 705-707. 3752

In North America, 6% of the cattle and 18% of the pigs have antibodies to *Leptospira pomona* whilst 3-38% of the urban dogs have positive blood titres to *L. icterohaemorrhagiae* or *canicola*. By using Stoenner's refined concentrated suspension of formalin-killed leptospores as antigen (which is stable at refrigerator temp. for at least a year) a rapid plate test can be undertaken in the field for initial screening, the extent of the titre in

positive sera being examined later. Reactions above 1:10 are diagnostically significant. The test compares favourably with the complement-fixation or agglutination-lysis tests.

—A. ACKROYD.

LEBEDA, M. (1959). Srovnávací studie trypaflavinové, karbolové, formolové, chinazolové a lyofilizované vakciny *Lept. icterohaemorrhagiae*. [Comparative study of trypaflavine, phenol, formol, chinazol and lyophilized leptospira vaccines.]—*Sborn. vys. Šk. zemědělsk. les. Fak., Brno, Ser. B.* **7**, Nos. 1-3. pp. 167-185. [In Czech. Summaries in English and Russian.] 3753

In a series of experiments in g.pigs on the comparative protective value of trypaflavine, phenol, formol, chinazol and freeze-dried *L. icterohaemorrhagiae* vaccines, it was shown that trypaflavine vaccine was superior to the others with regard to both immunizing power and economy of production.—E.G.

HEIDRICH, H. J. & GROSSKLAUS, D. (1959). Zwei Fälle einer durch *Clostridium perfringens* verursachten akuten Mastitis beim Rind. [Acute mastitis in two cows caused by *Clostridium welchii*.]—*Berl. Münch. tierärztl. Wschr.* **72**, 1-6. [Summary in English.] 3754

Of 2 cows with acute mastitis caused by *Cl. welchii* one, in which all 4 quarters were affected, was slaughtered in *extremis*, the other, in which only one quarter was affected and general condition was good, recovered after intramammary instillation of a penicillin-sulphonamide combination and i/v injection of a sulphonamide preparation.—M.G.G.

QUESADA, A. & ACONE, P. (1958). Azione svolta dalla tossina del *Cl. perfringens* di tipo C sui ricettori delle cellule del corion-allantoide di uova embrionate. [Effect of *Clostridium welchii* Type C toxin on receptors of the chorioallantoic cells of embryonated eggs.]—*Atti Soc. ital. Sci. vet.* **12**, 700-704. [Summaries in French and German.] 3755

Embryonated eggs were inoculated with the toxin of *Cl. welchii* Type C and later with Newcastle disease virus. Results are taken to indicate the presence of a receptor-destroying enzyme in the toxin.—T.E.G.R.

BOROFF, D. A. & REILLY, J. R. (1959). **Studies of the toxin of *Clostridium botulinum*. V. Prophylactic immunization of pheasants and ducks against avian botulism.**—*J. Bact.* **77**, 142-146. 3756

Pheasants and ducks were inoculated with

a mixture of *Cl. botulinum* Type C toxoid and Freund's incomplete adjuvant. The dose was repeated 3 or 4 weeks later. Challenge by the i/m route 10 days after the second injection revealed immunity against up to 2,000 LD₅₀ of toxin. Immunity lasted at least 8 months. Pheasant chicks and ducklings vaccinated from the age of one week resisted challenge with up to 1,000 LD₅₀ 2 weeks after the second injection of vaccine.—M.G.G.

MURNANE, D., EALES, C. E. & MONSBOURGH, M. J. (1959). **Vibriosis as a cause of infertility in selected dairy herds, and related studies.**—*Aust. vet. J.* **35**, 234-241. [Authors' summary.] **3757**

Vibriosis has been diagnosed as a cause of infertility in "problem herds" in Victoria and Tasmania by the isolation of *V. fetus* in cultures of vaginal mucus from cows in some herds, by test mating of some herd bulls and the subsequent isolation of the causal organism, and on the results of vaginal mucus agglutination tests.

Laboratory experiments have been conducted to test the reliability of the methods applied in the field and to obtain data which will assist in the elaboration of methods suitable for the diagnosis of vibriosis under Australian environmental conditions.

- I. VANDEPLASSCHE, M. (1959). Die Epidemiologie und die Bekämpfung der Vibriosis genitalis bovis. [**Epidemiology and control of vibriosis in cattle.**]—*Zuchthyg. Fortpfl.-Störung. u. Besamung* **3**, 1-15. [Summary in English.] **3758**
- II. HUBRIG, T. (1959). Zur bakteriologischen und serologischen Diagnostik von *Vibrio fetus*. [**Bacteriological and serological diagnosis of *Vibrio fetus*.**]—*Ibid.* 16-29. **3759**
- III. FLORENT, A. (1959). Über die Diagnostik der Genitalvibriose des Rindes. [**Diagnosis of genital vibriosis in cattle.**]—*Ibid.* 30-52. **3760**
- IV. ADLER, H. C. (1959). Die Diagnose der Vibriosis genitalis bovis. [**Diagnosis of bovine genital vibriosis.**]—*Ibid.* 53-58. **3761**
- V. HUBRIG, T. (1959). Kritische Betrachtungen zur Laboratoriumsdiagnostik der Vibriosis genitalis. [**Critical evaluation of laboratory diagnostic methods in vibriosis.**]—*Ibid.* 59-66. **3762**
- VI. HUBRIG, T. & WOHANKA, K. (1959). Zur Differenzierung mikroaerober Vibrionen aus den Geschlechtswegen des Rindes. [**Differ-**

entiation of vibrios isolated from the bovine genital system.]—*Ibid.* 67-72. **3763**

I-VI. These six papers were read at a symposium on bovine genital vibriosis, organized by the German Academy of Agricultural Sciences and held at Jena in May 1958. They survey the subject; there is little new information.—R.M.

LINDEGAARD, L. E. (1959). *Vibrio fetus* følsomhed in vitro over for en række antibiotika. [**Sensitivity of *Vibrio fetus* to antibiotics.**]—*Proc. VIIIth Nord. vet. Congr., Helsinki*, 1958. pp. 644-647. Discussion: 647-649. [In Danish. Summary in English.] **3764**

Among 64 Danish strains of *V. fetus* there was considerable variation in sensitivity to antibiotics but in general oxytetracycline, streptomycin plus oxytetracycline and streptomycin plus penicillin completely inhibited growth at concentrations of 0.2-1.56 µg./ml. of substrate, while chloramphenicol, chlortetracycline, penicillin, streptomycin inhibited at 3-6 µg./ml. —R.M.

FLORENT, A. (1959). Les deux vibrioses génitales de la bête bovine: la vibriose vénérienne, due à *V. foetus venereal*, et la vibriose d'origine intestinale due à *V. foetus intestinalis*. [**Types of *Vibrio fetus* infection in cattle.**]—*Proc. XVIth Int. vet. Congr., Madrid* **2**, 489-493. [In French.] **3765**

Genital vibriosis in cattle, it is stated, may be of venereal origin (enzootic type) or of intestinal origin (sporadic type). *Vibrio* organisms were demonstrable in the faeces of 4 of 5 cows with sporadic abortion and of 6 of 111 (which had not aborted) in infected and non-infected herds; but not in the faeces of 3 cows with venereal infection. *Vibrio* organisms (isolated from pig's intestines) were administered by the mouth to 6 cows in their 6th month of pregnancy; they were demonstrable for several weeks in the faeces but did not cause abortion; this is in contrast with the findings of other workers, in the case of sheep. *Vibrio* organisms (isolated from bovine faeces) were inj. i/v into each of two cows in the 7th month of pregnancy. One cow aborted after 3 weeks. The other gave birth to a viable calf two months later; the organism was demonstrable in the placenta, cotyledons, foetal fluids and meconium. This congenital intestinal infection in the calf persisted for several months. Specific vaginal agglutinins were demonstrable in both cows after expulsion of the foetus.—T.E.G.R.

WEIGER, M. (1958). Vergleichende Untersuchungen über Vibrionen und vibrienähnliche Mikroorganismen. [**Comparative studies of vibrios and vibrio-like micro-organisms.**]—*Inaug. Diss., Munich* pp. 72. **3766**

The cultural and biochemical properties of 72 strains of vibrios and vibrio-like organisms were studied. They were best distinguished by the catalase test, formation of hydrogen sulphide, optimum temp. and pH, and growth in peptone water. On the results of the tests they were divided into groups, which also corresponded to their origin (genital organs and foetuses, faeces and dung).—M.G.G.

BONINI, P. (1959). La cura della "zoppina lombarda" (podoparenchidermite necrobacillare) con sulfoni e omo-sulfamidici. [**Sulphones and sulphonamides in the treatment of foot rot in cattle.**]—*Vet. ital.* **10**, 224-229. **3767**

Nine cattle with foot rot were treated with 3 daily i/v or i/m injections of 60 ml. of 50% soln. of "Baludon" (acetaldehyde-bisulphite-diaminoliphenyl sulphone); 9 others with "Supronal", a sulphamerazine compound in 20% soln., i/v in doses of 100 ml. on the first 2 days and 50 ml. on the third; seven others with a 24% solution of sulphapyridine [dose and route of administration not given]. Satisfactory results were obtained with all three treatments.—T.E.G.R.

GYLSTORFF, J. (1959). Hypophysenveränderungen bei der Pyometra des Hundes. [**Pituitary lesions in bitches with pyometra.**]—*Dtsch. tierärztl. Wschr.* **66**, 70-74. [Summary in English.] **3768**

G. examined histologically the pituitary, thyroid and adrenal glands and hypothalamus from 21 bitches which died after operation for pyometra. He found hypertrophy of the pituitary, with focal hyperplasia of basophile and chromophobe cells, particularly in the anterior part. Many basophile cells had lost their granules. He suggested that these changes resulted from dysfunction of the ovaries.—R.M.

GORDON, H. A. & BRUCKNER-KARDOSS, E. (1959). [**The distribution of reticulo-endothelial elements in the intestinal mucosa and submucosa of germ-free, monocontaminated and conventional chickens orally treated with penicillin.**] In "Antibiotics annual 1958-1959" pp. 1012-1019. [New York: Medical Encyclopedia Inc.] **3769**

In germ-free chickens there were low

reticulo-endothelial cell values, especially for "Schollen" (globule) leucocytes, lymphocytes and plasma cells of mucosa and submucosa. The values in birds monocontaminated with *Str. faecalis* or *Cl. welchii* were close to those of conventional chickens. In both types of monocontaminated birds antibiotic feeding (50 mg. procaine penicillin G per kg. diet) resulted in values close to those in germ-free chicks; (but in germ-free chicks antibiotic feeding caused no change in cell count). The lymphocyte count in caecal lymph nodes closely paralleled the scattered reticulo-endothelial cell count.—F. R. PAULSEN.

PEGREFFI, G. (1959). Propriétés vaccinantes de la *Pasteurella multocida* aviaire et de la *Brucella dévitalisées* par des antibiotiques. [**Antibiotic treatment of *Pasteurella septica* and *Brucella abortus* for preparation of vaccines.**]—*Proc. XVIth Int. vet. Congr., Madrid* **2**, 513-514. [In French.] **3770**

A brief account of work previously published in Italian [*V.B.* **23**, 348 & 349; **26**, 3396; **28**, 3864].—R.M.

FRANCALANCI, G. (1959). Sull'aborto micotico dei bovini. [**Mycotic abortion in cattle.**]—*Vet. ital.* **10**, 278-291. [Summaries in English, French and German.] **3771**

During a period of 13 months 120 aborted foetuses and placentae were examined, *Aspergillus fumigatus* being isolated 15 times and *Absidia corymbifera* once. Typical skin lesions were observed on foetuses. The epidemiology of mycotic abortion is discussed. Isolations were made during the winter, not in late spring or in summer, and again in autumn. The disease was observed in cows aged 4-8 years but not in heifers. Fungi were isolated from preputial washing of 43 of 45 bulls and from semen of 33 of 40. Of 10 oestrous mucus samples from virgin heifers 9 were negative; and from 2 of 10 samples from cows *Mucor* and *Aspergillus* were isolated.—T.E.G.R.

PALLIOLA, E. (1958). Su un caso di aspergillosi bronco-polmonare nel bovino. [**Pulmonary aspergillosis in an ox.**]—*Atti Soc. ital. Sci. vet.* **12**, 493-497. [Summaries in English and German.] **3772**

Lung lesions in a slaughter animal are described. Fresh smears revealed a fungus which was identified as *Aspergillus fumigatus*, by its morphological and cultural characteristics. The pathogenetic aspects of the case are discussed.—T.E.G.R.

EZHOV, G. I. (1959). [Examination of fodder for fungal toxins, with special reference to *Fusarium*.]—*Veterinariya, Moscow* 36, No. 6 pp. 73-74. [In Russian.] 3773

E. recommended a precipitin test, employing antiserum from rabbits inoculated i/v 5 times at intervals of 1-4 days with culture of *F. poae*, as a sensitive and specific test for fungal toxins from the genus *Fusarium*.

—R.M.

ZIMA, L. (1959). První případ izolace *Stachybotrys alternans* v ČSR. [Isolation of *Stachybotrys alternans* in Czechoslovakia.]—*Sborn. čes. Akad. zemědělsk. Věd, vet. Med.* 4, 345-350. [In Czech. Summaries in German and Russian.] 3774

Pure cultures of *Stachybotrys alternans* were isolated from mouldy straw used as bedding for horses. Toxicity of ether extracts of cultures was demonstrated by application to the depilated skin of rabbits and g.pigs, toxicity of aqueous extracts by oral administration in rabbits. An outbreak of an acute, febrile disease with high mortality which occurred in 1955 in Slovakia, at that time associated with *Bact. viscosum equi* [V.B. 27, 684], was now believed to have been due to *S. alternans* intoxication.—E.G.

MARIAT, F. & GARDINI-TUESTA, W. E. (1959). Pouvoir pathogène expérimental d'une souche d'*Histoplasma capsulatum* isolée du singe africain. [Pathogenicity for laboratory animals of *Histoplasma capsulatum* isolated from African monkeys.]—*Ann. Inst. Pasteur* 96, 669-679. [Summary in English.] 3775

Spontaneous *Histoplasma capsulatum* infection in 7 African monkeys, *Cynocephalus babuin*, is described. Pathogenicity tests, with the filamentous phase of this fungus, in g.pigs, hamsters and mice, showed this strain to be markedly less pathogenic than other strains of large or small cell *Histoplasma capsulatum*—death was rare and supervened after several months; a few spores may persist in the lab. animal for a long time causing delayed, often inapparent infection; the small form of the fungus, found in the initial stage of infection with the African or American varieties of *H. capsulatum*, was not demonstrable; the yeast cells varied in size—some were $5.1 \times 3.8 \mu$ other had a mean diameter of 11.3μ .

—T.E.G.R.

OŽGOVIĆ, L. & MATIĆ, R. (1959). O jednoj epizootiji trihofitije goveda na Državnom poljoprivrednom dobru "Semberija". [An

outbreak of trichophyton infection in cattle and horses.]—*Veterinaria, Sarajevo* 8, 77-80. [In Croat. Summary in English.] 3776

Over a period of $2\frac{1}{2}$ years, 400 calves and heifers and 20 foals developed *Trichophyton verrucosum* var. *discoides* infection. Calves separated at an early age from their dams remained healthy. The disease was particularly virulent in a number of imported Friesian cattle. Control measures included repeated disinfection of byres and stables. No details of treatment are given.—E.G.

TEDESCHI, A. & ZAPPA, A. (1959). Dermatomi-cosi in patologia canina. [Dermatomycoses of dogs.]—*Clin. vet., Milano* 82, 161-168. 3777

Diagnosis and treatment of achorion, trichophyton and microsporum infections in dogs are discussed. Good results were obtained with a tincture containing fuchsine, phenol, boric acid, acetone and resorcin.—T.E.G.R.

SCATOZZA, F. (1959). Su di un ceppo di *Nocardia asteroides* isolato dal bovino. [An account of *Nocardia asteroides* infection in a cow.]—*Vet. ital.* 10, 441-458. [Summaries in English, French and German.] 3778

In a cow slaughtered for emergency reasons there were two enlargements obstructing the pharynx, and one on the diaphragmatic lobe of the left lung. Microscopic and cultural examinations revealed *Nocardia asteroides*, which was pathogenic for rabbit, g.pig and pigeon.—T.E.G.R.

LAURIDSEN, O. (1959). Forsøg med et nyt præparat overfor actinomycose. [Experiments with a new preparation against actinomycosis.]—*Proc. VIIIth Nord. vet. Congr., Helsinki*, 1958, pp. 1010-1012. [In Danish. English summary modified.] 3779

Experiments were made with trimethylaminopropanol-2 iodide, "Micoiodine", in the treatment of actinomycosis—especially the forms which are only slightly susceptible to the influence of potassium iodide.

The preparation can be given i/v, s/c or i/m; it is virtually non-toxic and causes no local reaction.

Mostly a single injection is enough to cure actinomycosis of the tongue, but in severe cases where the cheeks or the glands are affected, the injections have to be repeated.

HYSLOP, N. St. G. (1959). Advances in the control of contagious bovine pleuropneumonia. — *Proc. XVIIth Int. vet. Congr., Madrid* 2, 535-538. 3780

As a slaughter policy is as yet not applicable, control of bovine contagious pleuropneumonia in underdeveloped countries depends on detection of infection by mass serological tests, isolation, and vaccination of infected and in-contact herds, followed by prolonged quarantine and retesting before release. Since no existing vaccine protects all individuals and some insufficiently attenuated vaccines have actually spread the disease, eradication of the disease seems doubtful. No vector problem exists: natural infection is by airborne droplets exhaled by infected cattle or, rarely, by ingestion of contaminated fodder. Treatment by broad spectrum antibiotics, whilst moderately effective, is very expensive.

—A. ACKROYD.

GUERCIO, V. & NOBILI, I. (1959). Osservazioni su una epizoozia di pleuropolmonite essudativa delle capre in Sicilia. [**Pleuropneumonia of goats in Sicily.**]—*Vet. ital.* **10**, 269-277. [Summaries in English, French and German.] **3781**

Over 2,000 goats were affected in numerous outbreaks of exudative pleuropneumonia in southern Italy in the spring of 1957. Morbidity and mortality were 50-60%. The source of the epizootic is obscure. The disease first appeared in an isolated district and spread by contact at pasture. In-contact sheep were not affected. The infection died out spontaneously after 5-7 months. Pleuropneumonia-like organisms were isolated from the lungs. The disease was transmitted to young goats by intrapleural inj. of lung suspension, by intratracheal inj. of lung suspension filtrate and by intratracheal inj. of broth culture. Neither vaccination nor chemotherapy gave satisfactory results.—T.E.G.R.

KUJUMGIEV, I. (1959). Zur Ätiologie der infektiösen Agalaktie der Schafe und Ziegen. [**Aetiology of contagious agalactia of sheep and goats.**]—*Zbl. VetMed.* **6**, 37-45. [Summaries in English, French and Spanish.] **3782**

See also absts. 4021 (reports, Australia); 4022 (report, East Africa); 4023 (report, Nyasaland); 4024 (report, Tanganyika); 4025 (book, nomenclature of bacteria and viruses); 4026 (book, clostridial infections in man); 4027 (book, physiology of fungi).

DISEASES CAUSED BY PROTOZOAN PARASITES

NAKAMURA, M. (1959). Inhibition of *Entamoeba histolytica* in vitro by specific antibody. — *Parasitology* **49**, 104-107. [Author's summary modified.] **3785**

Bacteria-free cultures of *E. histolytica* were inhibited by specific and related antibodies

In smears of cultures of the agent of contagious agalactia, clusters of small bodies were seen under the high power of the microscope by means of phase-contrast technique. The clusters had the shape of a cat's paw print. They were made up of particles which passed a Seitz EK filter and were demonstrated by electron microscopy. The forms observed were all of the same size and shape. K. regarded the agent as a fungus and named it *Micromyces agalactiae*.—R.M.

BLANCO LOIZELIER, A. (1959). Vacunas avianizadas contra la agalaxia contagiosa de la oveja y cabra: estudio experimental. [**Avianized vaccines for contagious agalactia of sheep and goats.**]—*Proc. XVIth Int. vet. Congr., Madrid* **2**, 547-549. [In Spanish. Summary in English.] **3783**

Details of this work have already been published [*V.B.* **29**, 2399].—R.M.

JERSTAD, A. C., HAMILTON, C. M. & SMITH, V. E. (1959). The clinical course of infectious sinusitis in experimentally infected turkeys. —*Avian Diseases* **3**, 114-122. **3784**

In turkey hens, inoculation of the sinuses with the infectious sinusitis agent produced swelling of the sinuses and coughing in 6 days. Treatment with 4% silver nitrate became necessary for the control of the swollen sinuses. Six weeks after the inoculation coughing was no longer in evidence. Only the lower respiratory form of the disease as evidenced by coughing spread to uninoculated males in the flock. Egg production and hatchability were drastically reduced by the infection. In egg infected progeny, coughing was observed over a longer period than in the inoculated breeder flock although individual poults showed about the same maximum period of coughing. Sinus swelling persisted throughout the 12 weeks of observation. Complete agglutination in the serum plate agglutination test for pleuropneumonia-like organisms was preceded by characteristic symptoms.—A. ACKROYD.

in antisera produced in rabbits. Maximal culture-inhibiting antibodies were produced when the rabbits were immunized with frozen and thawed, formalin-treated trophozoites injected intravenously. Sera from human beings with histories of amoebiasis also inhibited growth of amoebae.

SOLTYS, M. A. (1959). Immunological problems in trypanosomiasis.—*Proc. XVIIth Int. vet. Congr., Madrid* **2**, 557-559. **3786**

A brief account of the author's work on drug-sensitivity of different strains of *T. brucei* [see also *V.B.* **29**, 2405] and on the value of the conglutination test in assessing the results of chemotherapy and in detecting drug-resistant strains.—R.M.

AMREIN, Y. U. & FULTON, J. D. (1959). Attempts to transfer drug-resistance of trypanosomes *in vivo*.—*J. Prot.* **6**, 120-122. [Authors' synopsis.] **3787**

Strains of *Trypanosoma rhodesiense* resistant to atoxyl and to antrypol respectively were allowed to multiply in the blood of mice and were also maintained for some hours in the gut of tsetse flies. They failed to acquire cross-resistance as shown by tests with the respective drugs given singly and in combination to infected mice.

SQUIRE, F. A. (1959). Infectibility of tsetse flies, *Glossina palpalis* (R.-D.) and *G. tachinoides* Westw. with *Trypanosoma vivax*.—*Bull. ent. Res.* **50**, 183-189. **3788**

Tsetse flies were allowed to feed several times on goats infected with *T. vivax*. Experiments took place in Ghana during March and April. The flies were dissected at various ages and examined for infection of the labrum and hypopharynx. 47 of 107 flies failed to become infected after an average of 10 feeds on goats. *G. tachinoides* appeared to be more easily infected than the other species. Early loss of labrum infection was recorded in a large proportion of flies.—R.M.

GALATI, P. (1958). Reperto di trombosi multipla in cane con Leishmaniosi viscerale. [Multiple thrombosis in a dog with visceral leishmaniasis.]—*Atti Soc. ital. Sci. vet.* **12**, 508-512. [Summaries in English and French.] **3789**

Thrombosis was observed P.M. in the spleen, liver and mesenteric vein of a dog with visceral leishmaniasis. The macroscopic and histological changes in the affected tissues are described.—T.E.G.R.

LEVINE, N. D., McCaul, W. E. & Mizell, M. (1959). The relation of the stage of the population growth curve to the survival of *Trichomonas foetus* upon freezing in the presence of glycerol. — *J. Prot.* **6**, 116-120. [Authors' summary modified.] **3790**

When grown in CPLM medium or in a similar medium containing glucose instead of

maltose, *Trichomonas foetus* Strain O was much more sensitive to injury when frozen to minus 21°C. in the presence of 1 M glycerol during the initial and logarithmic phases of its population growth curve than at its peak and for some time thereafter.

LUND, E. E. (1959). Immunizing action of a nonpathogenic strain of *Histomonas* against blackhead in turkeys. — *J. Prot.* **6**, 182-185. [Author's synopsis modified.] **3791**

Rectal inoculation of several thousand non-pathogenic histomonads on 2 or 3 consecutive days afforded considerable protection against moderate rectal challenges with pathogenic histomonads 3 to 6 weeks later, but was much less effective against pathogenic histomonads introduced by feeding eggs of *Heterakis gallinae*. It is believed that an immune barrier limited to the surface of the caecal mucosa was established, and that the larvae of the caecal worms often penetrated this barrier before liberating their histomonads, thus permitting blackhead to develop. Immunization by the introduction of non-pathogenic histomonads with *Heterakis* eggs was not satisfactory. Apparently, the non-pathogenic organisms introduced in this way were too few to assure formation of an intact barrier.

MERDIVENCI, A. (1959). Evcil koyun (Ovis aries) ve keci (Capra hircus) lerimizde coccidia (*G. eimeria*) nev'ileri ve bazı deneyler. [Coccidiosis in sheep and goats in Turkey.]—*Türk vet. Hekim. dern. Derg.* **29**, 260-281. [In Turkish. Abst. from English summary.] **3792**

Of a number of sheep with coccidiosis examined in Turkey, *Eimeria arloingi* was present in 50%, *E. parva* in 31%, *E. ninakohl-yakimovi* in 13%, *E. faurei* in 13%, *E. ah-sa-ta* in 6%, *E. granulosa* in 6%, *E. intricata* in 5%, and *E. pallida* in 4%. In goats *E. arloingi* was present in 77%, *E. parva* in 45%, *E. ninakohl-yakimovi* in 36%, *E. faurei* in 17%, *E. ah-sa-ta* in 9%, *E. granulosa* in 6% and *E. pallida* in 3%.—E.G.

WINTER, H. (1959). Coccidiosis in kangaroos. — *Aust. vet. J.* **35**, 301-303. [Author's summary modified.] **3793**

An outbreak of coccidiosis in pet kangaroos is described in which 9 of 11 animals died within 6 weeks. The outstanding P.M. changes were haemorrhagic and sometimes diphtheroid enteritis, with the most severe lesions in the jejunum. The parasites in the

mucosa were almost exclusively in stages of schizogony, characteristic of an acute and severe course, with little, if any, development of immunity.

BREZA, M. & JURÁŠEK, V. (1959). Príspevok k významu kokcidiózy ako príčiny hynutia laboratórnych myší. [**Coccidiosis in laboratory mice.**] — *Vet. Čas.* **8**, 372-378. [In Slovak. Summaries in English, French, German and Russian.] **3794**

Coccidiosis due to *Eimeria falciformis* in laboratory mice, was traced to contact with free-living house mice. The outbreak was eventually checked by an aqueous soln. of 0.025% of mepacrine hydrochloride, given as drinking water.—E.G.

ANON. (1959). New control program for coccidiosis.—*Mod. vet. Pract.* **40**, No. 4 pp. 54-55. **3795**

Injection of a proprietary vaccine "coccivac" containing live oocysts into 3-day-old chicks causes a mild infection of coccidiosis, resulting in production of antibodies within 1 week. 8 to 10 days after injection oocysts are voided and reconsumed by chicks, producing a second milder attack of the disease. Immunity is eventually achieved by a series of ever-diminishing attacks. A coccidiostat (trithiadol) is given in the food for 8 weeks to prevent "fully-fledged" attack, and allows survival of a few coccidia thus not interfering with the development of immunity. —BRENDA M. WILSON.

PATTILLO, W. H. (1959). Invasion of the cecal mucosa of the chicken by sporozoites of *Eimeria tenella*. — *J. Parasit.* **45**, 253-258. [Author's summary modified.] **3796**

Invasion by the sporozoites of *E. tenella* reveals a mode of penetration different from that previously assumed. Sporozoites, identified by their cytoplasmic glycogen, invade the surface epithelium of the caeca at the tips of villi and proceed across the basement membrane into the tunica propria through which they pass, free or within cells which are probably macrophages. The sporozoites then invade the epithelial cells lining the gland fundi.

Noticeable damage in the form of passageways or "penetration tubes" in the striated border and epithelium is produced by the invasion process. The basement membrane at the villar tips acts for a while as a barrier against further invasion.

DECARIS, L.-J. (1959). Action de la framycétine dans la coccidiose aviaire avec *Eimeria tenella* comme agent d'infestation. [**Treatment of coccidiosis in fowls with framycetin.**]—*Rec. Méd. vét.* **135**, 23-26. [Summaries in English and Spanish.] **3797**

Good results were claimed for treatment of coccidiosis by administration in the drinking water of framycetin sulphate in doses equivalent to 10 mg. a bird daily. Daily administration of the drug in the drinking water at 2-15 mg. a bird did not prevent coccidiosis.—R.M.

WAGNER, W.-H. & BAUER, F. (1959). Experimentelle Untersuchungen über die Wirkung von Codrinal bei der Blinddarmcoccidiose der Küken. [**Effect of "Codrinal" in caecal coccidiosis of chicks.**] — *Dtsch. tierärztl. Wschr.* **66**, 207-212. [Summary in English.] **3798**

"Codrinal", a preparation containing 0.55 g. sodium salt of *p*-toluolsulphonyl- β -methoxyethylurethane and 0.05 g. tetracycline hydrochloride per g., was given to chicks with *Eimeria tenella* infection at the rate of 4 g. per litre of drinking water for 3 days. Mortality was less than in untreated chicks, even when treatment began at the height of the infection, and the excretion of oocysts decreased. No side-effects were seen.—M.G.G.

TOKIN, I., KOLIĆ, I. & ŠEBETIĆ, Č. (1959). Transmission de la nuttalliose chez le cheval par le plasma sanguin. Traitement de ce plasma pour rendre son utilisation inoffensive. [**Transmission of babesia infection in horses by blood plasma transfusion.**] — *Bull. Off. int. Epiz.* **51**, 64-75. [Summary in English.] **3799**

A French translation of an article previously published in Croat [see *V.B.* **29**, 68].—M.G.G.

RISTIC, M. & PRITCHARD, W. R. (1959). Morphological and serological characteristics of *Anaplasma marginale* as observed by electron microscopy and fluorescein labeled antibody techniques. — *Proc. XVIIth Int. vet. Congr., Madrid 2*, 555-556. **3800**

Electron microscopy revealed that an anaplasma was made up of 6-8 "organisms" each 150-400 μ diam. Organisms were sometimes observed on the outside of the red cell membrane. The work on fluorescein-labelled antibody has already been described in detail [*V.B.* **28**, 1752].—R.M.

RAWAL, B. D. (1959). **Toxoplasmosis in sheep in England.**—*Lancet* April 25th, 881-882. **3801**

Serum samples from 100 sheep and 100 pigs were subjected to the dye test. Eleven sheep sera and 12 pig sera reacted at a titre of 1:4 or higher; 3 sheep sera reacted at 1:64. A further 100 sheep sera were obtained, and 21 reacted at a titre of 1:4 or more. Toxoplasma was isolated from the brain of 6 of these 21 sheep by i/p inoculation into mice. —M.G.G.

SATO, H., SAHEKI, Y., MUTO, T., OISHI, I., KOBAYASHI, S., MIYAMOTO, Y. & OCHI, Y. (1958). [**Studies on toxoplasmosis in domestic animals. I. Isolation of *Toxoplasma gondii* from pigs and dogs.**—*Jap. J. vet. Sci.* **20**, 213-221. [In Japanese. English summary modified.] **3802**

During 18 months toxoplasma infection was observed in 6 pigs and 3 dogs. In pigs the lungs were inflamed and oedematous, and the liver showed swelling, induration and round-cell infiltration. Enlargement, passive hyperaemia, haemorrhage and focal necrosis were found in the spleen. Widespread coagulation necrosis of lymph nodes was a characteristic finding. Toxoplasms were demonstrated in the lesions of every case.

Mice were inoculated with material from two pigs, and two strains of toxoplasma were isolated. No other pathogens were isolated.

Three Doberman puppies from one litter died from distemper and were also found to be infected with toxoplasmas.

See also absts. 4022 (report, East Africa); 4023 (report, Nyasaland); 4024 (report, Tanganyika).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

WITTMANN, G. (1959). Selektion einer thermoresistenten Variante des Maul- und Klauenseuchevirus. [**Selection of a heat-resistant variant of foot and mouth disease virus.**—*Zbl. VetMed.* **6**, 1-7. [Summaries in English, French and Spanish.] **3805**

The variant was obtained by passaging in mice Type O virus which had withstood heating at 50°C. for 12 hours. The heat-resistance of the variant remained fairly constant through 20 passages in mice.—R.M.

PARAF, A., ASSO, J., VERGE, J. & DHENNIN, L. (1959). Étude quantitative des propriétés immunogènes du virus aphteux "lapinisé". Vaccination antiaphteuse par virus vivant chez les bovins. [**Immunogenic properties of lapinized foot and mouth disease virus: its**

BÉQUIGNON, R., SERGENT, G. & VIALAT, C. (1959). A propos des examens histologiques systématiques des névraxes d'animaux mordeurs. [**Value of routine histological examination of the central nervous system of dogs and other biting animals for the diagnosis of rabies and toxoplasmosis.**]—*Ann. Inst. Pasteur* **96**, 702-711. [Summary in English.] **3803**

Routine histological examination of the brain, using Mann's eosin-methyl blue method of staining, is of value in the differential diagnosis of rabies from toxoplasma encephalitis which is very common in domestic animals, especially young dogs, and may be difficult to distinguish clinically from rabies. Of 440 brains (dog and cat) examined 383 were positive for toxoplasmosis and 33 for rabies. —T.E.G.R.

BYRD, M. A. (1959). **Observations on *Leucocytozoon* in pen-raised and free-ranging wild turkeys.**—*J. Wildlife Mgmt* **23**, 145-156. **3804**

Leucocytozoon infection was studied in native free-living and pen-reared wild turkeys on a game farm in Virginia. Experimentally infection was produced in wild and domestic stock by i/m inj. of macerated *Prosimulium hirtipes* in saline; the flies were collected in and around the pens. Few symptoms attributable to the infection were discernible in wild turkeys, but further studies should be carried out to determine its possible effect on reproduction, and mortality in poults.—E.G.

use as a live vaccine for cattle.]—*C.R. Acad. Sci. Paris* **248**, 1455-1458. **3806**

Type C virus passed 136 times in progressively older rabbits protected all 4 cattle challenged with fully virulent virus after 21 days. Mild F. & M. disease attributable to vaccination occurred in 2 of 14 cattle.—R.M.

HENDERSON, W. M. & CUNHA, R. G. (1959). **Research on the development of a modified live virus vaccine in foot-and-mouth disease.**—*Proc. XVIth Int. vet. Congr., Madrid 2*, 395-396. **3807**

F. & M. disease virus types Vallee O and A, and Waldmann C were adapted to unweaned rabbits, and after 100 passages rabbits up to 7 weeks old could readily be infected. Using the 111th O passage, 73 cattle were

inoculated as follows: i/d tongue, 17; i/d, 39; i/m, 17; the amounts given by the last 2 routes being about 10^7 mouse I.D.₅₀. About a quarter of the animals showed some degree of clinical infection and, along with 37 which had no symptoms, were immune on challenge. The same modified virus was used in small-scale field trials and the animals [numbers not given] had antibodies at a protective level for at least 6 months: animals with a mean protection index (mouse test) of 2.0 are probably immune. 138th passage virus immunized poorly and its pathogenicity was reduced. The authors feel that development of a modified live virus vaccine may provide a solution of the F. & M. disease problem.

—W. K. DUNSCOMBE.

- I. UBERTINI, B., NARDELLI, L., SANTERO, G. & PANINA, G. (1959). Comparaison du pouvoir immunogène du virus aphteux cultivé *in vivo*, *in vitro* par la méthode de Frenkel et sur cellules rénales. [Comparison of the immunogenicity of foot and mouth disease virus propagated in cattle, by Frenkel's method and on kidney cells.]—*Proc. XVIIth Int. vet. Congr., Madrid 2*, 397-400. [In French.] 3808
 - II. ZAVAGLI, V., MAZZARACCHIO, V., FONTANELLI, E., ORFEI, Z., D'AMORE, A., RAVAIOLI, L. & CASTAGNOLI, B. (1959). La nouvelle vaccination anti-aphteuse avec un virus cultivé sur des cellules rénales de porc. [New foot and mouth disease vaccine with a virus grown on pig kidney cells.]—*Ibid.* 401-403. [In French.] 3809
 - III. MAZZARACCHIO, V., ZAVAGLI, V., ORFEI, Z., D'AMORE, A., RAVAIOLI, L., CASTAGNOLI, B. & FONTANELLI, E. (1959). La réponse immunitaire chez les bovidés vaccinés avec des vaccins antiaphteux monovalents, bivalents et trivalents. [Immune response in cattle vaccinated with monovalent, bivalent and trivalent foot and mouth disease vaccines.]—*Ibid.* 405-406. [In French.] 3810
- I.-III. These papers discuss Italian work on F. & M. disease done in the past 3 years. [See also *V.B.* 27, 1429; 28, 1765-6.]—R.M.
- BROWN, F. & CRICK, J. (1959). Application of agar-gel diffusion analysis to a study of the antigenic structure of inactivated vaccines prepared from the virus of foot-and-mouth disease.—*J. Immunol.* 82, 444-447. [Authors' summary.] 3811

Fractionation of the virus of foot-and-mouth disease by ultracentrifugation has shown that the 20-m μ component is respon-

sible for the immunogenicity of vaccines prepared from the virus.

A comparison has been made of the action of formaldehyde and acetylenimine on the infectivity and antigenicity of the virus. The antigenic structure, as examined by agar-gel diffusion, is unaltered by acetylenimine but markedly altered by formaldehyde during the inactivation process.

Vaccines prepared by the use of these agents have been compared, the formalized vaccine being inferior to that prepared by use of the imine.

- KHERA, K. S. (1959). Studies on the foot-and-mouth disease virus (Type A) by plaque assay technique. (With a brief review of literature).—*Indian vet. J.* 36, 231-236. [Author's summary modified.] 3812

From the results of experiments with Type A virus it may be concluded that: plaques are attributable to the specific activity of the virus; from the size and morphology of plaques, it is not possible to distinguish and isolate Type A from other types of the virus; the relationship between the number of plaques and concentration of virus is linear; and as regards the comparative value of titration of a given viral suspension the "plaque titre" is higher than that in unweaned mice.

- STROHMAIER, K. & MUSSGAY, M. (1959). Bestimmung der Sedimentationskonstante eines infektiösen Prinzips mit Nucleinsäurecharakter aus dem Virus der Maul- und Klauenseuche mit Hilfe der Gradientenzentrifugation. [Sedimentation constant of an infectious nucleic acid component of foot and mouth disease virus.]—*Z. Naturf.* 14b, 171-178. 3813

From the sedimentation constant of 37 S, the molecular wt. of the infectious nucleic acid component was calculated as 3.1×10^6 .—R.M.

- BALDELLI, B. & TORLONE, V. (1958). Diagnosi sperimentale della malattia di Aujeszky su colture di tessuto *in vitro*. [Diagnosis of Aujeszky's disease by tissue culture.]—*Atti Soc. ital. Sci. vet.* 12, 571-576. [Summaries in English and French.] 3814

Aujeszky's disease in a cat and a dog was diagnosed biologically, P.M. The virus was isolated by inoculating brain suspension into dog kidney cell culture.—T.E.G.R.

- RISLAKKI, V. (1959). Beobachtungen über das Vorkommen der Rabies in Finnland und Untersuchungen über die Eigenschaften der

finnischen Rabiesvakzine. [**Rabies in Finland and properties of the Finnish vaccine.**] — *Proc. XVIth Int. vet. Congr., Madrid* **2**, 639-642. [In German.] **3815**

R. discussed the incidence of rabies in dogs in the past 30 years. Details of the vaccine have been given in the author's thesis [*V.B.* **28**, 1772].—R.M.

SILBERSTEIN, W. (1959). Ergebnisse und Probleme der Tollwutbekämpfung in Israel in den Jahren 1948-1958. [**Results and problems of rabies control in Israel during 1948/58.**] — *Zbl. Bakt. I. (Orig.)* **174**, 431-439. [Summaries in English, French, Spanish and Russian.] **3816**

During the ten years rabies was diagnosed in 726 dogs, 194 cattle, 29 camels, 21 sheep, 20 donkeys, 5 horses, 8 goats, 1 pig, 39 cats and 99 jackals. 23 human beings died from rabies and 11,500 received prophylactic treatment. Attempts were being made to immunize all dogs and to destroy jackals and stray dogs.

—R.M.

VILLEMOT, J.-M. & PROVOST, A. (1959). Étude sur l'antigène soluble du virus rabique. [**Soluble antigen of rabies virus.**] — *Ann. Inst. Pasteur* **96**, 712-722. [Summary in English.] **3817**

Rabies virus gives two lines of precipitation in gel medium. In the light of the work by Kipps *et al.*, who consider that the soluble antigen consists of two components, it would appear that the immune precipitates obtained correspond to two distinct soluble antigenic fractions—a thermostable one (with smaller particles), giving rise to c.f. antibodies, and a thermolabile one (with larger particles) responsible for neutralizing antibodies. The appearance of c.f. antigen after the formation of the virulent particle is taken to indicate that the soluble antigen is neither a precursor of nor a template for the virus. The immunological, physical and chemical properties of the soluble antigenic fractions would be accounted for by differences in their molecular structures.

—T.E.G.R.

SÁNCHEZ BOTIJA. (1959). Epizootia de viruela equina (horse pox) en España. [**Epidemiology of horse pox in Spain.**] — *Proc. XVIth Int. vet. Congr., Madrid* **2**, 487-488. [In Spanish.] **3818**

A brief account of an outbreak which occurred in 1943. [For further details see *Trab. Inst. Biol. Anim.* **9**, 421 (1950).]—R.M.

HILBRICH, P. (1959). Der Einfluss der Schutzimpfung mit Geflügelpockenadsorbatvakzine auf Hühnerpockenvirusbasis auf Küken und Junghennen. [**Effect of adsorbed fowl pox virus vaccine on chicks and pullets.**] — *Berl. Münch. tierärztl. Wschr.* **72**, 52. **3819**

From 1953 to 1958, about 190,000 chickens in 115 flocks were vaccinated with pigeon pox vaccine. Breaks occurred only in 2 flocks, 3 and 4 weeks after vaccination. One of these flocks was vaccinated in the following year with adsorbed vaccine prepared from fowl pox virus: 5,964 chicks were vaccinated at the age of 2-4 weeks. Losses were no higher than normal (1%). Application of virulent virus to the scarified skin 4-7 months later showed complete immunity. Chicks vaccinated with fowl pox virus vaccine at the age of one week grew as well and consumed as much food and water as unvaccinated chicks.—M.G.G.

GREŠKOVÁ-KOHÚTOVÁ, M. (1959). Perzistencia vírusu klieštovej encefalitidy v mlieku a v mliečnych výrobkoch. [**Survival of Czechoslovak tick-borne encephalitis virus in milk and milk products.**] — *Csl. Epidem. Mikrobiol. Imunol.* **8**, 26-32. [In Slovak. Summaries in English and Russian.] **3820**

The titre of Czechoslovak tick-borne encephalitis virus in cows' milk was undiminished after storage at 4°C. for two weeks and in cream and butter after storage for about two months. [See also *V.B.* **28**, 1051 & **29**, 2093.]—E.G.

GREGOROVIČ, V., ŠENK, L. & BEKŠ, L. (1959). Istraživanja o dijagnostičkoj vrijednosti nalaza siderocita u perifernom krvotoku kod zarazne anemije kopitara. [**Diagnostic value of siderocytes in the peripheral blood of horses with equine infectious anaemia.**] — *Vet. Arhiv* **29**, 93-100. [In Croat. Summaries in English and French.] **3821**

Siderocytes were demonstrated in the peripheral blood of 105 of 113 horses in which clin. symptoms of E.I.A. were confirmed histopathologically, in 18 of 22 clinical cases with doubtful histopathological findings, and in 3 of 19 without histopathological lesions. Siderocytes were not demonstrable in 50 healthy horses, and in 65 with various diseases including secondary anaemia, strangles, purpura haemorrhagica, tetanus, enteritis, pneumonia, helminth parasites, various tumours, abscesses and wounds, etc. The diagnostic value of siderocytes was discussed.—E.G.

WARDLE, R. N. (1959). Sur l'anémie infectieuse des équidés. [**Equine infectious anaemia in Australia.**]—*Bull. Off. int. Epiz.* **51**, 26-28. [In French and English.] **3822**

A virus anaemia of horses is reported on 2 farms in Queensland. It was transmitted experimentally with filtered blood. Sera obtained from 3 horses were positive for equine infectious anaemia. This disease was not previously suspected in Australia.—M.G.G.

I. BROOKS, O. H. (1959). A viral disease complex of horses in Central Queensland. Clinical observations.—*Aust. vet. J.* **35**, 165-172. **3823**

II. NEWTON, L. G. (1959). A viral disease complex of horses in Central Queensland. Pathological aspects.—*Ibid.* 172-181. **3824**

III. LUDFORD, C. G. (1959). A viral disease complex of horses in Central Queensland. Serological investigation.—*Ibid.* 181-187. **3825**

I. B. records field observations during two years in Central Queensland of a disease in horses characterized by progressive emaciation and anaemia, and death within 3 to 6 months. On properties where this syndrome occurred, there were also sudden deaths, the affected animals showing a serous ocular and nasal discharge, oedema of the head, and tetanus-like spasms immediately before death. Foals, under a month old, sometimes died within a few days after showing inappetence, scouring, ataxia, generalized dermatitis and excoriation of the skin of the muzzle. Sometimes the disease was shown by depression, anorexia, rapid loss of condition and oedematous swellings of the head, throat, prepuce and legs, followed after 7-10 days by typical purpura haemorrhagica. The disease is transmissible, and the clinical and P.M. findings of the chronic form resemble those of equine infectious anaemia. The acute and subacute cases resemble equine influenza, and it is possible that more than one virus is involved.

II. Transmission experiments demonstrated the presence of an infective agent in the blood of horses affected with a disease characterized by anaemia, anasarca, emaciation and death. Infection could be produced by s/c and i/v injection of blood or serum, or by serum after filtration through an Elford membrane of 600 m μ porosity. Some experimental horses showed a single febrile reaction accompanied by slight oculo-nasal discharge, others recurrent reactions persisting up to 129 days. Clinically severe cases showed dullness, loss of condition, anasarca and debility, and,

P.M., swelling of the liver and spleen, yellowish discoloration of the tissues, and petechial haemorrhages. Histopathological changes were infiltration of lymphoid cells into liver and kidney, and haemosiderin in liver, lung, and kidney.

The recurrent febrile reactions, the prolonged course of the disease and the histopathology, differ from the published descriptions of equine influenza, which is the only virus disease of horses recorded in Australia.

III. The c.f. and haemagglutination tests used in other countries for equine infectious anaemia are described, and similar techniques were applied to serum samples from field and experimental cases of the local disease.

Non-specific results occurred with the c.f. test of Altara, Serra & Guarini [*Arch. Vet. Ital.* **4**, 489 (1953)] and although haemagglutination of chick erythrocytes occurred, the rise in titre was not significant in all infected horses, and the sera of some apparently normal horses caused agglutination.—N. WICKHAM.

ROBSON, J., ARNOLD, R. M., PLOWRIGHT, W. & SCOTT, G. R. (1959). The isolation from an eland of a strain of rinderpest virus attenuated for cattle.—*Bull. epiz. Dis. Afr.* **7**, 97-102. [Summary in French. Authors' summary modified.] **3826**

An attenuated field strain of rinderpest virus isolated from an eland (*Taurotragus oryx*) was stable on serial passage in cattle. It infected zebu and grade cattle, hairy sheep and goats but not pigs, mice, g.pigs and rabbits.

The disease in cattle was non-lethal, with mild but prolonged fever, mouth lesions and infrequent, transient diarrhoea. It spread readily, however, by contact amongst susceptible cattle. The strain therefore resembled the attenuated field strain isolated 10 years before in Tanganyika from infected crossbred Ankole-zebu cattle.

MORNET, P., GORET, P., GILBERT, Y. & GUEFFON, Y. (1959). Nouvelles recherches sur l'immunization contre la peste bovine à l'aide du virus de la maladie de Carré. [Further studies on immunization against rinderpest by the virus of dog distemper.]—*C.R. Acad. Sci. Paris* **248**, 2815-2817. **3827**

Of 32 cattle from a district free from rinderpest, 16 were inoculated i/m with varying doses of spleen from ferrets with distemper, 4 with ferret brain, and 12 with varying doses of avianized distemper virus. All the cattle and 2 unvaccinated controls were

challenged after 22 days by s/c inj. of 200,000 m.l.d. of rinderpest virus. All 4 of those inoculated with the highest dose (900 m.g.) of ferret spleen and the 4 inoculated with ferret brain resisted challenge. Four of 8 cattle inoculated with avianized virus (1,000 or 10,000 dog doses) resisted challenge.—R.M.

BURDIN, M. L. & PRYDIE, J. (1959). **Lumpy skin disease of cattle in Kenya.**—*Nature, Lond.* **183**, 949-950. **3828**

The first outbreak, in 1957, was confined to calves and the mortality was very low. The disease spread unaccountably to herds many miles apart, there was infestation by mosquitoes on the first farm and on 54 of 56 farms subsequently infected; the possible role of the mosquitoes is being investigated.

In severe cases, nodules have been found in the skin and also in the oral cavity, pharynx, larynx, trachea, lungs, liver and stomachs; histological examination revealed intracytoplasmic inclusions in the epithelial and infiltrating mononuclear cells. The infective agent was isolated from active cases.—E.V.L.

KONRÁD, J. & BOHÁČ, J. (1959). Virová encefalomyelitis skotu. Klinická studie a pokus o izolaci etiologického agens. [**Virus encephalomyelitis in cattle. Clinical study and attempted isolation of the agent.**]—*Vet. Cas.* **8**, 228-238. [In Czech. Summaries in English, French and German.] **3829**

Over about four years eight cattle, five from the same farm, developed a disease clinically manifested by nervousness, ataxia, twitching of head, muscles and ears, nystagmus, tremor of lips, and hyperaesthesia. Histological lesions in the c.n.s. were those of a non-purulent encephalomyelitis. In ganglion cells basophilic formations resembling Guarnieri bodies were present. Similar inclusions were also seen in brain, liver and spleen of experimentally infected g.pigs. Mice resisted infection. The virus isolated from the brain of an infected cow was grown in the yolk sac of chick embryos. It was identified as the agent of sporadic encephalomyelitis of cattle, belonging to the psittacosis-lymphogranuloma group of viruses.—E.G.

BRAGAZZI, G. (1959). Di una grave forma di ectima contagiosa degli ovini. [**A severe form of contagious ecthyma in sheep.**]—*Zooprofilassi* **14**, 177-178. **3830**

An account of contagious pustular dermatitis in three flocks of sheep with high

morbidity and mortality (up to 30%). Treatment consisted of antibiotics and topical applications of antiseptics.—T.E.G.R.

WEBSTER, R. G. (1958). **The immunological relations of the contagious pustular dermatitis virus to the mammalian pox group.**—*Aust. J. exp. Biol. med. Sci.* **36**, 267-274. **3831**

Complement fixation, agar diffusion and virus neutralization tests indicated that the C.P.D. virus shares antigens with the vaccinia and ectromelia viruses. This, together with its similarity in size, shape and pathogenicity to the pox viruses, suggests that the C.P.D. virus should be included in the mammalian pox group.—D. S. ROBERTS.

SHCHERETŲKH, P. Y., TSION, R. A., PROTA-SOV, A. I., UBRAN, V. P. & SIDORENKO, B. V. (1959). [**Treatment of swine fever with specific gamma-globulin.**]—*Veterinariya, Moscow* **36**, No. 1 pp. 36-40. [In Russian.] **3832**

The authors have previously described the preparation of specific gamma-globulin [*V.B.* **28**, 1431] and now describe trials on 220 experimentally infected pigs. It was administered by i/m inj. in doses (for pigs weighing 15-16 kg.) of 4-6 g., equivalent to 100-150 ml. of swine fever immune serum. Before use one part of globulin was dissolved in 10 parts of normal saline. It protected pigs when given within 24 hours after i/m inj. of 0.25 ml. of virus suspension. Treatment with doses of 20-22 g. was effective when the globulin was inoculated within 24 hours of the onset of fever. Pigs which recovered after treatment possessed firm immunity to swine fever and did not harbour virus in their blood.—R.M.

MAYR, A. & CORRENS, H. (1959). Experimentelle Untersuchungen über Lebend- und Totimpfstoffe aus einem modifizierten Gewebekulturstamm des Teschenvirus (Poliomyelitis suum). [**Experimental studies on live and dead vaccines prepared from a modified tissue-culture strain of Teschen virus.**]—*Zbl. VetMed.* **6**, 416-428. [Summaries in English, French and Spanish. English summary modified.] **3833**

After numerous passages in pig kidney cultures the Teschen strain "Konratice" lost pathogenicity but retained immunizing properties. With modified virus of the 130th passage two live vaccines (oral and subcutaneous) and one formalin vaccine (subcutaneous) were prepared and compared.

All three produced virus-neutralizing

antibodies in the serum. The development of antibodies after feeding live vaccine was different from that of the other vaccines; antibody production was significantly better with the subcutaneous live vaccine.

In spite of differing antibody pictures the protective effect of all three vaccines was very similar. The formalin vaccine protected 80% of piglets inoculated once, the oral live vaccine 83.3% and the subcutaneous live vaccine 86.6%. It is clear that the protective effect of a vaccine is only incompletely measured by quantitative determination of virus-neutralizing antibodies.

Formalin vaccine was not much inferior to the live vaccines after six weeks. If a live vaccine is to be used for Teschen disease the modified non-pathogenic Konratice strain of the virus should be selected and should be administered subcutaneously.

THORDAL-CHRISTENSEN, A. (1959). **A study of benign enzootic paresis of pigs in Denmark.** pp. 189. Copenhagen: Carl Fr. Mortensen. [Thesis, Copenhagen.] [In English. Summary in Danish.] **3834**

This is a detailed clinical, histological and experimental study of 5 outbreaks of a disease in Danish pigs identical with that described as enzootic transmissible paresis or poliomyelitis suum by Bendixen & Sjolte [*V.B.* **26**, 108]. A filtrable virus was passaged in pigs by intracerebral inoculation; it caused ataxia followed by paresis, with little or no disturbance in general condition, associated with non-purulent polioencephalomyelitis. Small-scale attempts to demonstrate virus by virus neutralization and complement fixation failed. No specific degenerative changes occurred in tissue cultures of pig testicle and embryonic lung, infected with the virus, and culture inoculum was not infectious for piglets. The virus was apparently non-pathogenic for lab. animals and dogs. Of the 52 illustrations, 8 show typically affected pigs and 33 are photomicrographs of lesions in brain, spinal cord and peripheral nerves. The disease had little in common with human poliomyelitis. A comparison with Teschen disease revealed histological similarities in the nervous lesions, but clinically enzootic paresis was very much milder than Teschen disease; both viruses resisted the action of ether. [The disease described closely resembles that described in the United Kingdom as Talfan disease (*V.B.* **28**, 1066). Chaproniere, Done & Andrewes (*V.B.* **28**,

2159) have compared the viruses of poliomyelitis suum, Talfan disease and Teschen disease.]—R.M.

JANOWSKI, H. & ZULIŃSKI, T. (1959). Przypadki zakaźnego zapalenia mózgu i rdzenia u świń (*Polioencephalomyelitis infectiosa suum*). [Transmissible polioencephalomyelitis in pigs in Poland.]—*Med. Wet., Warszawa* **15**, 196-200. [In Polish. Summaries in English and Russian.] **3835**

The occurrence of a disease resembling that described as poliomyelitis suum in Denmark and as Talfan disease in the United Kingdom was first recorded in Poland in 1958. It affected 63 pigs aged between 6 weeks and 8 months in four localities. Clinical symptoms were dullness, transient loss of appetite, fever, constipation, retention of urine and sometimes vomiting. Most pigs recovered but some developed paralysis which lasted for 1-3 weeks; 4 died and 9 had to be destroyed. The disease was reproduced in a 30 kg. pig by s/c and oral administration of suspension of brain and spinal cord from one of the 9 pigs. The incubation period was 17 days. Histological examination of brain and spinal cord from naturally and experimentally infected pigs revealed perivascular infiltration with small, round cells in white and grey matter. It was not possible to compare the causal agent with the viruses isolated in Denmark and Gt. Britain. Teschen disease was excluded. [An English version of this work has been published in *Biul. Inst. Wet. Pulaŕwy* **2**, 67 (1958).]—M. GITTER.

SASAHARA, J., HARADA, K., HAYASHI, S. & WATANABE, M. (1958). **Studies on transmissible gastroenteritis in pig in Japan.**—*Jap. J. vet. Sci.* **20**, 1-6. [In English. Summary in Japanese. Authors' summary modified.] **3836**

An epidemic disease with diarrhoea, vomiting in some cases, and high mortality of sucking pigs was found in two prefectures in Japan. From the intestinal mucosa of diseased pigs a virus was demonstrated and has been passaged serially through pigs. Field observations and experimental studies indicated a similarity to transmissible gastro-enteritis in the U.S.A., and the virus was antigenically identical with the American virus.

IVANOV, B. G. & BOGOLEPOV, V. I. (1959). [Intranuclear inclusions in porcine atrophic rhinitis.]—*Veterinariya, Moscow* **36**, No. 7 pp. 68-69. [In Russian.] **3837**

Intranuclear inclusions similar to those

described by Done [*V.B.* **26**, 565 & **29**, 1783] were observed in mucous membrane of the turbinate bones, nasal septum and, more rarely, the ethmoid bone from 26 of 32 pigs aged up to 12 weeks, with atrophic rhinitis.

Inclusions were not observed in 11 affected pigs aged 3-9 months. The histology of the inclusions is described and there are 8 photomicrographs. The inclusions were stated to be similar to those observed in virus cytomegaly of infants and g.pigs by Kod'ousek [*Arkh. Pat.* 1958 No. 10 p. 3] and by Ter-Grigorova & Ivanovskaya [*Ibid.* p. 15]. It was suggested that porcine atrophic rhinitis was a cytomegalic disease associated with a virus. The inclusion bodies could be used for diagnosis, particularly in early stages of the disease when characteristic atrophy and deformation were absent.—R.M.

OXER, D. T. (1959). **Some recent advances influencing prophylaxis against canine distemper.**—*Aust. vet. J.* **35**, 194-200. **3838**

A review particularly with regard to strain vaccination, the close antigenic relationship of distemper and hard pad disease, the time taken to develop resistance after vaccination, maternal antibody in relation to successful vaccination of the pup, and the demonstration of virus in various tissues. Avianized vaccines, and likely reasons for immunization failures, are discussed.—N. WICKHAM.

KEEP, J. M. (1959). **Immunisation against canine distemper by the modified virus method.**—*Aust. vet. J.* **35**, 200-202. [Author's summary modified.] **3839**

Unfavourable results following avianized distemper vaccination have sometimes caused this type of immunization to be abandoned, but at the Sydney University Veterinary Hospital, over the last three years, modified virus has given satisfactory results. Great care is exercised in the storage and use of the vaccine. There is no evidence of breakdowns occurring because the modified virus has become pathogenic. Many so-called breakdowns have proved to be due to conditions other than distemper.

RUEBNER, B. & BRAMHALL, J. L. (1959). **Effect of dietary protein on the severity of experimental mouse hepatitis.**—*Nature, Lond.* **183**, 609-610. **3840**

Two groups of 30 mice aged 32 days, of which one group had been on a high protein diet for 11 days, were inoculated i/p with 0.1 ml. of a 1% mouse liver suspension from mice infected with M.H.V.3 virus: the mortality

rate of mice on the high protein diet was approx. half that of mice on low protein diet. While animals are usually rendered less susceptible to many virus diseases by dietary insufficiency, the present finding confirms that a high protein diet protects against hepatotoxic agents.—E.V.L.

MARASTONI, G. & SIDOLI, L. (1959). **Un focolaio di pseudo-peste spontanea nel piccione. [An outbreak of Newcastle disease in pigeons.]—Vet. ital.** **10**, 349-358. [Summaries in English, French and German.] **3841**

An account of spontaneous Newcastle disease in pigeons.—T.E.G.R.

KOHN, A. (1959). **The role of the alimentary tract and the spleen in Newcastle disease.**—*Amer. J. Hyg.* **69**, 167-176. [Author's summary.] **3842**

The Newcastle disease virus which reaches the lower intestinal tract of susceptible chickens multiplies there locally before entering the blood stream. The blood circulation enables it to reach other parts of the intestine as well as visceral organs. The virus multiplies first and preferentially in the spleen, which becomes the main source of the virus in the blood. Some of the virus multiplying in the intestinal wall is excreted all along the intestine, and the amount of the virus in the intestinal contents increases as the faecal material moves towards the cloaca. The minimal time required by the spleen cells to synthesize NDV is about 3 to 4 hours.

ŽUFFA, A. & ŠKODA, R. (1959). **Imunizácia proti Newcastelskej chorobe. 3. Význam pasívnej imunity pri infekcii a imunizácii proti Newcastelskej chorobe. [Immunization against Newcastle disease. III. Role of passive immunity.]—Vet. čas.** **8**, 220-227. [In Slovak. Summaries in English, French and German.] **3843**

Circulating antibodies against Newcastle disease produced by high doses of immune serum in chicks twelve weeks old, retarded slightly but did not affect otherwise, the rise in the antibody level produced by intra-conjunctival or intranasal vaccination with attenuated virus. When given s/c, however, the effect of the vaccine was neutralized by the serum. After vaccination and before the complete fade out of immunity there was a transitory stage during which chicks resisted infection, although antibodies were no longer demonstrable. Infection during this stage

resulted in a marked increase in the antibody titre, without producing clin. symptoms.

Chicks given serum and virulent virus simultaneously by the s/c route survived, those given serum and virulent virus intraconjunctivally, died. It was concluded that in order to obtain satisfactory protection in the field, prophylactic serum should be given simultaneously with attenuated virus, injected either intranasally or intraconjunctivally.—E.G.

BRAN, L., SUHACI, I., TOMESCU, V., URSACHE, R. & POPA, E. (1959). Imunizácia kurčiat proti Newcastelskej chorobe avirulentným kmeňom B1. [Immunization of chicks against Newcastle disease with avirulent strain B1.] — *Vet. Čas.* 8, 209-219. [In Slovak. Summaries in English, French and German.] 3844

In Roumania, Newcastle disease vaccine, strain B1, tested in the field in about 2 million chicks and adult fowls, proved highly effective. Modes of application in order of efficacy were by aerosol, i/m and in the drinking water. In chicks immunity lasted about two months, in laying hens about six months. Egg production was not affected. Vaccination, however, failed to check the disease, once an outbreak had occurred. Details were given of pathogenicity for chick embryos and of keeping quality of freeze-dried vaccine. Simultaneous vaccination with B1 virus and fowl pox vaccine was satisfactory.—E.G.

SHEHATA, H. (1958). Zur pathologischen Anatomie und Histologie der Virushepatitis der Enten in Deutschland. [Pathology and histology of virus hepatitis of ducks in Germany.] — *Inaug. Diss., Hanover* pp. 51. 3845

This dissertation gives details of the outbreak previously reported by Shehata & Reuss [*V.B.* 27, 1781]. There are 10 photomicrographs of lesions.—R.M.

FRAŇO, J. & KAPITÁŇK, B. (1959). Vírus chrípky *A anatis*, kmeň "Košice 1956", izolovaný z respiračného ochorenia káčenic. 2. Stúdia hemaglutinačných vlastností. [Influenza virus *A anatis*, isolated from ducks with a respiratory disease. II. Haemagglutinating properties.] — *Vet. Čas.* 8, 244-254. [In Slovak. Summaries in English, French, German and Russian.] 3846

At 4°, 20° and 37°C., influenza A virus, isolated from ducklings with a respiratory disease [*V.B.* 29, 2088], agglutinated human group A, Rh-positive erythrocytes, and also those of horse, dog, ox, sheep, goat, rabbit, g.pig, cat, mouse, hedgehog, ground squirrel

[*Citellus citellus*], fowl, duck, goose, pigeon, frog and spotted salamander. At 4° and 20°C. "Rostock" strain of fowl plague virus agglutinated all these types of erythrocytes, whereas an indigenous Newcastle disease virus characteristically failed to agglutinate horse r.b.c. At 37°C. both Newcastle disease and fowl plague virus failed to agglutinate dog, ox, goat, ground squirrel, hedgehog, rabbit, fowl, g.pig and cat r.b.c.—E.G.

STOKER, M. G. P. (1959). Studies on avian lymphoma virus in tissue culture.—*Virology* 8, 250-261. [Author's summary modified.] 3847

Plaque assay methods have been developed in various chick embryo cells for a strain of avian lymphoma virus adapted to tissue culture. Chick liver parenchymal cells were the most sensitive cells tested, and fibroblasts from whole chick embryos were about one hundred times more resistant. No genetic difference was found in particles able to infect the two types of cell. The capacity of both cells to produce virus was resistant to X-irradiation with 5,000 r.

Spleen cells were very insensitive to lymphoma virus but degenerated in high virus concentrations. With increasing age or on subculture, spleen cells became sensitive.

Changes due to the virus in all cells were degenerative, and no infection without cytopathogenic changes was detected.

KRIVINKA. (1959). Die Ornithose der Enten. [Psittacosis in ducks.] — *Proc. XVIth Int. vet. Congr., Madrid* 2, 363-366. [In German.] 3848

In Czechoslovakia in 1955, 23 human beings were known to have been infected with psittacosis virus by ducklings. Since then a few cases have been reported each year. The symptoms and lesions of infection in ducklings were described.—R.M.

JANSEN, J. (1959). Ornithosis bij duiven. [Diagnosis of psittacosis in pigeons.] — *Tijdschr. Diergeneesk.* 84, 643-649. [In Dutch. Summaries in English, French and German.] 3849

Complement-fixation tests on sera from 76 pigeons suspected of being infected and 24 apparently healthy pigeons revealed that antigen prepared from peritoneal exudate of mice by the method of Brand & Lippelt (1954) gave more reliable results than antigen prepared from mouse lung or chorio-allantoic membrane.—R.M.

OMORI, T., KUROGI, H., INABA, Y., ISHII, S. & MATUMOTO, M. (1959). *Miyagawanella* : psittacosis-lymphogranuloma group of viruses. 9. Psittacosis of canary-birds in Japan.—*Jap. J. exp. Med.* **29**, 131-141. [In English. Authors' summary modified.] **3850**

Psittacosis virus was isolated from two canaries associated with human psittacosis and from 4 of 13 canaries dead of or suffering from canary-pox. This is the first report in Japan which confirms psittacosis in canaries. The properties of the isolated virus were the same as those of psittacosis virus, except for low pathogenicity upon intracerebral inoculation of pigeons.

GODGLÜCK, G. (1959). Spontane und experimentelle Infektion mit Poliomyelitis Virus bei Tieren und deren Bedeutung als Reservoir für das Poliomyelitis-Virus. [Spontaneous and experimental infection of animals with poliomyelitis virus and their importance as reservoirs of infection. A review.] — *Zbl. Bakt. I. (Ref.)* **170**, 551-563. **3851**

A discussion on spontaneous poliomyelitis in monkeys; experimental infection of rodents, moles, lab. and domestic animals; and poliomyelitis-like diseases of animals (fowl paralysis, sporadic bovine encephalomyelitis, Teschen disease). [84 references.]—R.M.

See also absts. 3803 (histology of rabies and toxoplasmosis); 4022 (report, East Africa); 4023 (report, Nyasaland); 4024 (report, Tanganyika); 4025 (book, nomenclature of bacteria and viruses).

MEYERS, J. C. (1958). Paraplegia infecciosa. [Infectious paraplegia (preliminary communication).] — *Rev. Med. vet., B. Aires* **39**, 114. **3852**

In the province of Santiago del Estero (Argentina) the infectious paraplegia previously described by Mascara [*V.B.* **29**, 2441] has been observed not only in goats, horses, sheep and cattle but also in pigs and dogs. In dogs it was often difficult to distinguish the condition from rabies and distemper. It was stated that neoarsphenamine therapy was successful in many cases.—R.M.

QUERSIN-THIRY, L. (1959). Action of anticellular sera on virus infections. II. Influence on heterologous tissue cultures.—*J. Immunol.* **82**, 542-552. **3853**

It has been shown previously [*V.B.* **29**, 418] that heated rabbit anticellular sera at appropriate concentrations (to dilute out the agglutinative effect) can immunologically block the cellular cultures. Thus virus infection is inhibited although the cells remain alive.

The protective action of anticellular sera against virus did not display a more narrow specificity than did the agglutination test, but it proved more sensitive in some cases. It also provided complementary information concerning the antigenic interrelationships between cell lines and primocultures.—R.M.

IMMUNITY

FEINBERG, J. G. & GRAYSON, H. (1959). A critical test of antigenic relationships. — *Nature, Lond.* **183**, 987. **3854**

A simple, direct method is described for determining whether cross-reacting antigens are identical or merely similar. Essentially the method incorporates the use of well-shaped patterns accurately cut in agar plates, two such plates being used for the comparison of the antigen solutions. The procedure is such that if the antigens are identical, the precipitation patterns at all wells are of equal intensity. When similarity without identity exists, alternate wells show strong and weak precipitation band patterns, the positions being reversed in the two plates. In each plate the homospecific antigen gives strong bands, the related heterospecific antigen weak bands.—E.V.L.

POULIK, M. D. (1959). Starch-gel immunoelectrophoresis. — *J. Immunol.* **82**, 502-515. [Author's summary modified.] **3855**

An immunoelectrophoretic method based upon one-dimensional and two-dimensional zone electrophoresis is described in detail.

A discontinuous system of buffers was used to increase the resolving power of the starch-gel electrophoresis and to increase the sensitivity of the antigen-antibody reactions in agar gel.

SAINT-PAUL, M. & BONNET, J.-L. (1959). Étude immunologique de certaines péri-splénites expérimentales chez le chien. [Immunological reactions in experimental splenitis in dogs.] — *Ann. Inst. Pasteur* **96**, 734-754. [Summary in English.] **3856**

Perisplinitis was produced in 16 dogs by coating the spleen with methylcellulose and the following immunological studies were carried out: auto-agglutination of r.b.c.; agglutination of papain-treated r.b.c.; passive agglutination of tanned r.b.c. coated with spleen extract; precipitation by spleen extract; Coombs' direct

and indirect tests. Measurement of the portal pressure and histological studies of the spleen were also carried out. The animals were kept under observation for up to 72 weeks and 13 of them gave immunological reactions: 4 within the first few weeks; 8 between the fifth and twelfth week; 1 in the 27th week. These results were studied in relation to histological findings.—T.E.G.R.

I. BANOVIĆ, J., SINGER, S. J. & WOLFE, H. R. (1959). **Precipitin production in chickens. XVIII. Physical chemical studies on complexes of bovine serum albumin and its chicken antibodies.**—*J. Immunol.* **82**, 481-488. **3857**

II. BANOVIĆ, J. & WOLFE, H. R. (1959). **Precipitin production in chickens. XIX. The components of chicken antiserum involved in the precipitin reaction.**—*Ibid.* 489-496. [Authors' summaries modified.] **3858**

I. Soluble antigen-antibody complexes containing bovine serum albumin (BSA) and its specific chicken antibody have been examined electrophoretically and ultracentrifugally. A tentative conclusion is that two electrophoretically distinguishable types of antibody exist in this chicken antibody system. Quantitative analyses of these electrophoresis patterns indicate that the binding of BSA by chicken antibody is relatively weak compared to rabbit antibody.

II. By the electrophoretic examination of unabsorbed and absorbed sera it was shown that only the gamma-globulin component of chicken serum contributes a large amount of antibody protein to the precipitate of antigen and antibody. The alpha-globulin component could only have a minor role in the precipitin reaction.

BILLINGHAM, R. E. & SILVERS, W. K. (1959). **The immunologic competence of chickens' skin.**—*J. Immunol.* **82**, 448-457. [Authors' summary modified.] **3859**

See also absts. 3691 (staphylococcal toxin and toxoid); 3699 (serology of chromobacterium); 3715 (antigenic components of mycobacterial extracts); 3718 (influence of swine erysipelas serum on the effect of penicillin); 3732 (antibody response of the udder); 3739 (brucella allergens); 3741 (insoluble cell material from brucella); 3744 (Strain 19); 3752 (rapid plate test in leptospirosis); 3753 (comparative evaluation of leptospiral vaccines); 3756 (vaccination of pheasants and ducks against botulism); 3783 (ovine and canine agalactia vaccines); 3785 (specific antibody inhibiting *E. histolytica* in vitro); 3786 (trypanosomiasis); 3791 (blackhead); 3800 (anaplasmosis); 3805-3813 (F. & M. disease); 3815-3817 (rabies); 3819 (fowl pox vaccine); 3826-3827 (rinderpest); 3832 (swine fever); 3833 (Teschen disease); 3839 (dog distemper); 3843-3844 (Newcastle disease); 3879 (helminths); 3967 (incompatibility of plasma in dogs);

When grafts of adult chickens' skin are transplanted to the chorioallantoic membranes of 9 to 10-day-old chick embryos they heal in soundly, become vascularized and evoke a characteristic cellular response in the underlying extra-embryonic mesenchymal tissue of their host. These grafts also bring about enlargement of, and certain lesions in, hosts' spleens. It is argued that these changes are the results of an immunological reaction of certain cellular ingredients present in the skin grafts against the foreign cellular "transplantation" antigens of the embryonic hosts. Experiments on exsanguinated and perfused donors, and determinations of the minimal amount of whole blood required to produce lesions in the hosts' spleens, have shown that the immunological competence of chickens' skin cannot simply be ascribed to the activity of certain leucocytic ingredients of the blood in its vessels, but must be regarded as residing mainly, if not entirely, in fixed cells of the skin which are almost certainly lymphocytes.

OLSSON, B. (1959). **Absorption av immunoglobuliner hos spädgris. [Absorption of immune globulins in piglets.]**—*Proc. VIIIth Nord. vet. Congr., Helsinki*, 1958. pp. 103-108. [In Swedish. Summary in English.] **3860**

A discussion of work done with F. Nordbring, reported in detail elsewhere [*V.B.* **29**, 2831].—R.M.

LUDVIGSEN, J. (1959). **Allergisk betingede lidelser i tarmkanalen hos svin. Foreløbig meddelelse. [Allergic reactions in the intestinal tract of pigs. (Preliminary report).]**—*Proc. VIIIth Nord. vet. Congr., Helsinki*, 1958. pp. 415-421. [In Danish. Summary in English.] **3861**

L. discussed the role of allergy in digestive disturbances of pigs. Terminal ileitis, diagnosed by laparotomy, responded to corticotrophin therapy.—R.M.

PARASITES IN RELATION TO DISEASE [GENERAL]

SWIERSTRA, D., JANSEN, J., JR. & VAN DEN BROEK, E. (1959). **Parasites of animals in the Netherlands. Survey of identified parasites of domestic and free-living animals and**

fecal examinations in the years 1948-1958 inclusive.—*Tijdschr. Diergeneesk.* **84**, 892-900. [In English. Summaries in Dutch, French and German.] **3862**

A list of helminths, mites, insects and fungi found in horse, cattle, sheep, goat, pig, dog, cat, ferret, rabbit, lab. animals, poultry and wild animals and birds.—R.M.

ARMBRECHT, J. (1958). Die Behandlung des latenten Helminthen- und Sarcoptesbefalls des Schweines mit Neguvon "Bayer". [**"Neguvon" treatment of latent helminth infections and latent sarcoptic mange in pigs.**] —*Inaug. Diss., Hanover* pp. 43. **3863**
 "Neguvon" (one or 2 doses of 50 mg./kg.

body wt.), cadmium anthranilate (30 mg./kg. daily for 3 days), and piperazine succinate (one dose of 300 mg./kg.) stopped or greatly reduced the excretion of ascarid ova in 341 pigs. "Neguvon" and piperazine succinate were also partially effective against *Oesophagostomum* and "Neguvon" was effective against *Trichuris*. Clinical cures of sarcoptic mange were obtained in 29 pigs receiving orally 50 mg./kg. of "Neguvon" daily for 3 days, treatment being repeated 10 days later.—M.G.G.

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

SCOTT, M. T. & SINCLAIR, A. N. (1959). **Surface spraying and dusting for the control of ectoparasites of sheep. I. Preliminary trials on the control of the sheep body louse (*Damalinia ovis*).**—*Aust. vet. J.* **35**, 288-292. **3864**

SINCLAIR, A. N. (1959). **Surface spraying and dusting to control ectoparasites of sheep. II. Experiments with surface sprays and dusts to control the sheep body louse (*Damalinia ovis*) and the sheep ked (*Melophagus ovinus*).**—*Ibid.* 293-296. **3865**

I. Body lice (*D. ovis*) were eradicated from small groups of sheep treated off shears by surface spraying or tip spraying with 0.025% dieldrin emulsion using $\frac{1}{4}$ to $\frac{1}{2}$ gal. per sheep, by "jetting" or saturating a strip down the back and crutch with 0.025% dieldrin emulsion using $\frac{1}{2}$ gal. per sheep, or by dusting with a 0.3% dieldrin using 1-1 $\frac{1}{2}$ oz. per sheep. All three applications were made by mechanical devices. The louse population persisted for some weeks after treatment and sheep could be re-infested 12 weeks after treatment. With all methods of application, treating sheep carrying longer wool or using lower concentrations for surface spraying reduced but did not eradicate the lice. Repeated surface spraying of some sheep had no ill effect.

II. Under field conditions body lice (*D. ovis*) were eradicated from flocks by surface spraying off shears with 0.125% dieldrin or 0.125% diazinon emulsions or by dusting with a 3% dieldrin or a 1.8% diazinon dust. Keds (*M. ovinus*) were eradicated by surface spraying off shears with a 0.25% dieldrin or a 0.25% diazinon emulsion or by dusting with a 3% dieldrin or a 0.18% diazinon dust. From 5-9 sheep were treated with a gallon of spray and 10-20 sheep with a pound of dust. Treatments carried out on sheep with long wool gave variable results.—N. P. H. GRAHAM.

ROSENBERGER, G. (1959). Neue Formen der Dasselbekaempfung. [**New forms of warble control.**] —*Proc. XVIIth Int. vet. Congr., Madrid* **2**, 601-603. [In German.] **3866**

A brief account of the organic phosphorus insecticides which have been applied topically or systemically.—R.M.

BEESLEY, W. N. & DAVIES, S. F. M. (1959). **The implantation of first-instar larvae of *Hypoderma* into experimental animals.**—*Vet. Rec.* **71**, 21-23. [Authors' summary.] **3867**

First-instar larvae of *Hypoderma* obtained from slaughtered cattle were implanted into guinea-pigs, mice, rats, rabbits and calves. Live larvae were recovered later from all types of animals and in rabbits up to 98 days after implantation. In both calves and rabbits typical warbles appeared in the skin of the back. First-, second- and third-instar larvae emerged from the calves but only first-instar larvae were recovered from rabbits. It is concluded that implanting larvae of *Hypoderma* is a practical means of establishing infestations in rabbits and furthermore such infestations can be maintained for a time adequate for the testing of larvicidal substances.

WILKINSON, P. R. & WILSON, J. T. (1959). **Survival of cattle ticks in central Queensland pastures.** —*Aust. J. agric. Res.* **10**, 129-143. **3868**

In vitro tests showed desiccated larvae to be capable of imbibing water from droplets such as dew as well as from humid atmosphere. Dews occurred on favourable areas of the pasture even under conditions of extremely low rainfall, e.g. 3.6 inches over eight months.

In the Rockhampton area (53°S. latitude) larval progeny of ticks put out in winter survived on a pasture for 6 months, and of those put out in summer for 3 months. The

variation was due to prolongation of the "pre hatch" period and not larval survival. The protection provided by a sparse tree canopy did not increase survival time. There was a considerable loss of larvae on the pasture for unknown reasons. A few larvae survived much longer than the majority. The brief persistence of larvae during the summer suggests that temporary destocking of pastures would be a practical routine measure of tick control.

—N. P. H. GRAHAM.

BREMNER, K. C. (1959). **Studies on "haemixodovin", the pigment in the eggs of the cattle tick *Boophilus microplus* (Acarina: Ixodidae).** — *Aust. J. biol. Sci.* **3**, 263-273. [Author's summary modified.] **3869**

The pigment in the eggs of *B. microplus* is shown to be a chromoprotein made up of a water-insoluble globulin conjugated with the prosthetic group protohaem. The name "haemixodovin" is proposed for it, and its spectral absorption characteristics are described.

The physiological significance of this haemoprotein is discussed, and evidence is presented which indicates that, whereas the protein moiety of the molecule is utilized as a food reserve by the developing larva, the haem

grouping is probably a functionless inclusion derived from the bovine haemoglobin of the parent tick's diet.

CERNÝ, V., HODINÁŘOVÁ, D. & KALINOVSKÁ, M. (1959). Pokusys hubením klíštěte obecného (*Ixodes ricinus* L.) v přírodě popraškem H.C.H. [Experimental field control of *Ixodes ricinus* with benzene hexachloride.] — *Čsl. Epidem. Mikrobiol. Imunol.* **8**, 61-62. [In Czech. Summaries in English and Russian.] **3870**

In a tick-infested area, a dusting powder, containing 8-12% of BHC, applied at a rate of 40-80 kg./hectare [approx. 35-70 lb./acre], failed to eradicate, but reduced the incidence of *I. ricinus* markedly for about 3-4 weeks.

—E.G.

MOSKACHEVA, E. A. (1959). [Influence of soil cultivation on the population of oribatid mites.] — *Veterinariya, Moscow* **36**, No. 6. pp. 65-68. [In Russian.] **3871**

Ploughing virgin soil greatly reduced the population of oribatid mites, intermediate hosts of *Moniezia* in ruminants, but anthelmintic treatment of affected animals remained the most radical method of controlling these tapeworms.—R.M.

See also absts. 3788 (susceptibility of *G. palpilis* and *G. tachinoides* to *T. vivax*); 4022 (report, East Africa); 4023 (report, Nyasaland).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

MOLINARI, P. & VALCARENGHI, G. (1959). Indagini funzionali del fegato nella distomatosi dei bovini. [Liver function in cattle with fasciola infestation.] — *Veterinaria, Milano* **8**, 71-74. [Summaries in English, French, German, Spanish and Portuguese.] **3872**

Tests for bilirubin, protein and cholesterol were made on 30 healthy and 67 diseased cattle. Results were not considered to be of diagnostic value.—T.E.G.R.

TROFIMOV, V. P. & ALYAB'eva, L. L. (1959). [Spontaneous fascioliasis in guinea-pigs.] — *Veterinariya, Moscow* **36**, No. 6 pp. 43-44. **3873**

During 3 years nearly half of a small lab. colony of g.pigs died from liver damage associated with the presence in each liver of 2-5 specimens of *F. hepatica* measuring 18-19 mm. long and 8 mm. wide. The animals were fed grass from pasture grazed by infested ruminants. Treatment with hexachloroethane (0.3 g./kg.) gave good results.—R.M.

BORAY, J. C. (1959). **Studies on intestinal amphistomosis in cattle.**—*Aust. vet. J.* **35**, 282-287. [Author's summary modified.] **3874**

The geographical distribution of intestinal amphistome infestations and an outbreak in cattle in Hungary and the pathological lesions are described. The detection of the immature amphistomes in the faeces is the only useful ante-mortem method of diagnosis. Some experimental treatments are described; as yet there is no effective treatment against the immature parasites in the duodenum.

STEPANOV, I. A. (1959). [Comparison of tin arsenate and copper sulphate against *Moniezia benedeni* in sheep.] — *Veterinariya, Moscow* **36**, No. 6 p. 42. [In Russian.] **3875**

300 lambs were each dosed with either 0.3-0.7 g. tin arsenate or 30-45 ml. of 1% CuSO₄ soln. Treatment commenced 29 days after the lambs were put on pasture and was repeated twice at intervals of 25 days. No tapeworm eggs were found in the faeces of lambs after the first treatment with CuSO₄;

eggs were present in faeces from 12 of the 150 tin-treated lambs after the first treatment, 3 after the second and none after the third. In 20 untreated lambs, 16 gave positive faeces samples throughout the trial.—R.M.

KOUDELA, K. (1959). Výsledky jednoletého průzkumu uřivosti skotu. [Results of one year's research into bovine cysticercosis in Czechoslovakia.]—*Sborn. čes. Akad. zemědělsk. Věd, vet. Med.* 4, 441-454. [In Czech. Summaries in English and Russian.] **3876**

Of 5,322 slaughter cattle examined in 1958, cysticercus was present in 101 of 2,185 bulls, in 63 of 1,237 heifers, in 52 of 1,701 cows and in 22 of 199 steers. In 212 of the 238 infested animals only one cysticercus was found. Age appeared to have no effect on the site of infestation. Seasonal incidence was highest in September and lowest in December and January.—E.G.

FANKHAUSER, R., HINTERMANN, J. & VALETTE, H. (1959). Coenurosis beim Schafen. [Coenurosis in sheep.]—*Schweiz. Arch. Tierheilk.* 101, 15-32. [Summaries in English, French and Italian.] **3877**

Coenurosis affected 73 young sheep in two flocks. All the brains were examined after slaughter and the authors give an illustrated description of the macroscopic and microscopic lesions.—R.M.

GALLO, C. & GUERCIO, V., (1958). Il sale comune nella profilassi della idatidosi. [Common salt as a prophylactic against echinococcus infestation.]—*Atti Soc. ital. Sci. vet.* 12, 431-436. [Summaries in English and French.] **3878**

Of four puppies fed hydatid-infested liver previously washed in saturated soln. of common salt two were found to harbour immature taenia, one had no parasites and one had mature and immature taenia in the ratio of 1:10. Of four puppies fed infested liver previously washed in water 3 harboured numerous mature parasites. It is suggested that treatment of infested organs with salt soln. may be of some value in the control of hydatid disease.—T.E.G.R.

SOULSBY, E. J. L., (1959). The importance of the moulting period in the stimulation of immunity to helminths. — *Proc. XVIth Int. vet. Congr., Madrid* 2, 571-573. **3879**

A discussion of recent work, with special attention to action on the host of exsheathing fluid liberated in the rumen or abomasum by moulting larvae of parasitic nematodes.—R.M.

WHITLOCK, H. V. (1959). The recovery and identification of the first stage larvae of sheep nematodes. — *Aust. vet. J.* 35, 310-316. [Author's summary.] **3880**

A technique is described by which nematode eggs are separated from sheep faeces and cultured in a glass tube designed for the recovery of first-stage larvae. The larvae are killed with iodine soon after hatching and are thus at a uniform stage of development when examined for identification.

Differentiation of the first-stage larvae is based on characters similar to those employed for identification of the infective stage.

Differential diagnosis of nematode infestations by examination of first-stage larvae may be completed within 24-26 hours, whereas 6-7 days is required for the development and identification of infective larvae.

TROMBA, F. G. (1959). Swine as potential reservoir hosts of *Hepaticola hepatica*. — *J. Parasit.* 45, 134. **3881**

Two piglets fed eggs of *Hepaticola* [*Capillaria*] *hepatica* obtained from rats were found to have "milk spot" lesions in the liver, similar to those usually associated with ascarid infection, when they were slaughtered 21 and 30 days later.—R.M.

LEINATI, L. & MARAZZA, V. (1959). La trichinosis negli animali selvatici, in Italia. [Trichinella infestation in wild animals in Italy.]—*Clin. vet. Milano* 82, 1-4. [Summary in English.] **3882**

Of 594 foxes examined 195 were infested with trichinella; 691 other animals of different species were free.—T.E.G.R.

HERLICH, H. (1958). Further observations on the experimental host-parasite relations of the guinea pig and the ruminant parasite, *Trichostrongylus colubriformis*. — *J. Parasit.* 44, 602. **3883**

Experimental infection of g.pigs with *T. colubriformis* larvae often caused loss of weight and sometimes death, but susceptibility varied, some dying after administration of 4,150 larvae and others surviving a dose of 10,000 larvae. Sex and age did not affect susceptibility.—M.G.G.

VODRÁŽKA, J., BERECKÝ, I. & SOKOL, J. (1959). Sledovanie účinku hydrazidu kyseliny kyánovej na *Dictyocaulus filaria* in vitro a u infestovaných oviec. [Action of cyanacetyldrazide on sheep lungworms.]—*Vet. čas.* 8,

255-267. [In Slovak. Summaries in English, French, German and Russian.] 3884

Cyanacethydrazide at first stimulated and then paralysed larval and adult *Dictyocaulus filaria*. 19 sheep with medium or heavy infestation were each given 3 daily s/c inj. of 15 mg./kg. body wt. as 5% or 20% soln. Although the sheep were in poor condition they tolerated treatment well. Curative effect was best in sheep which showed no lung lesions when killed. Results were better than those achieved with an antimony preparation.—E.G.

MATOFF, K. & WASSILEFF, I. (1959). Über die Artzugehörigkeit der Ascaridata des Schafes (*Ovis aries*). [Species of ascarids in sheep.] —*Z. Parasitenk.* 19, 111-134. 3885

The ascarids of Bulgarian sheep were *Ascaris lumbricoides* and *A. vitulorum*. Worms previously described as *A. ovis* must be regarded as *A. lumbricoides*.—R.M.

IVASHKIN, V. M. (1959). [Parabronema skrjabini infestation of ruminants.] —*Veterinariya, Moscow* 36, No. 6 pp. 26-28. [In Russian.] 3886

A general account of the life-cycle of the parasite and diagnosis and control of infestation, based on recent studies in Mongolia and adjoining territories of the U.S.S.R. The intermediate host was *Lyperosia titillans*.

Treatment of affected cattle, camels, sheep and goats with phenothiazine killed adult parasites when large doses were given (0.2-0.3 g./kg. for cattle); continuous feeding of small doses (0.02 g./kg. for cattle) killed eggs, and also larvae of the intermediate host developing in faeces.—R.M.

OHISHI, I., KOBAYASHI, S. & KUME, S. (1959). [Diagnosis of canine filariasis. III. Method for concentrating microfilariae in blood.] —*J. Jap. vet. med. Ass.* 12, 149-153. [In Japanese. Abst. from English summary.] 3887

A reagent was prepared from 5 ml. of 0.5% filtered methylene blue, 5 ml. acetone, 0.2 g. sodium citrate and 90 ml. water. Nine ml. of reagent were mixed with 1 ml. of blood and the mixture centrifuged for 10 min. at 1,500 r.p.m.; 0.1 ml. of sediment plus residual fluid was transferred to a cover slip for microscopy. It was claimed that this gave better results than existing methods.—R.M.

YEH LIANG-SHENG. (1959). A revision of the nematode genus *Setaria* Viborg, 1795, its host-parasite relationship, speciation and

evolution.—*J. Helminth.* 33, 1-98. 3888

In a revision of the genus *Setaria* the author gives a review of the literature on the systematics of this group. The genus is divided into three genera: *Hyaconema* n.g.; *Setaria* monotypic for *S. equina* the common parasite of equine animals; and *Artionema* n.g. for the remaining species, all of which occur in artiodactyls. *Artionema africana* n.sp. is the genotype. It is found in cattle in various parts of Africa.

There is a brief section on pathology which summarily dismisses the work which has been done in Japan and Ceylon on outbreaks of cerebral setariasis in goats, sheep and horses. This section is not of the standard of the rest of the paper and might well have been omitted.

DIRKSEN, G. (1959). Stephanofilarien als Ursache der "Sommerwunden" des Rindes in den nordwestdeutschen Weidegebieten. [Stephanofilaria, the cause of "summer sores" in cattle in north-western Germany.] —*Dtsch. tierärztl. Wschr.* 66, 85-88. [English summary modified.] 3889

The clinical symptoms, course and histology of "summer sores" in grazing cattle in north-western Germany are described. *Stephanofilaria* is the causal agent. The species has not yet been identified.

RHODE, C. (1958). Prüfung des Phosphon-säureesters Neguvon (Bayer) auf seine Wirksamkeit gegen Endoparasiten (*Fasciola hepatica*, *Trichostrongyliden* und *Trichuris ovis* sowie *Dictyocaulus viviparus*) des Rindes. [Action of "Neguvon" against some helminth parasites of cattle.] —*Inaug. Diss., Hanover* pp. 54. 3890

A 0.5% soln. of "Neguvon" killed *Fasciola hepatica* *in vitro* after 15 min., and a 0.1% soln. after 2½ hours. 5% and 2.5% solns. killed *Dictyocaulus viviparus* after 2½ hours and 1% and 0.5% solns. after 5½ hours. Of 145 cattle, 46 were given 3 oral doses of 80 mg. "Neguvon" per kg. body wt. at intervals of 30 days, and the remainder a single dose of 75-100 mg./kg. Counts of ova in the faeces revealed that infestation with *Trichuris ovis* was greatly reduced and trichostrongyle infestation slightly reduced, but no effect was seen on *F. hepatica* and *Nematodirus*. The numbers of *D. viviparus* larvae decreased, but this may have been due to the development of resistance.

—M.G.G.

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS
[INCLUDING FOWL PARALYSIS]

LECHNER, M. (1958). Spontanumoren bei Säugetieren. Ein Beitrag zur vergleichenden Geschwulstforschung. [**Spontaneous tumours in mammals.**]—*Inaug. Diss., Munich* pp. 44. **3891**

At the Munich University Pathological Institute, from 1952 to 1957, tumours were found in 365 dogs (incidence of 16.3%) and in 344 individual organs from dogs, 32 cats (4.2%), 54 cattle (13.2%), 26 horses (20.9%), 9 pigs (0.9%), 2 rabbits (0.7%), 2 of 24 sheep, and 12 of 305 other mammals. The average age of the affected dogs was 8.4 years; the highest incidence was in Boxers (42%) and the lowest in wire-haired terriers (7%); tumours (chiefly carcinoma and mixed tumours) of the mammary gland accounted for 40% of the cases in dogs; male dogs were affected chiefly in the thyroid gland, skin, anal glands and digestive tract, carcinoma occurring more frequently than sarcoma. In cats the main affected organs were the liver, mammary gland and pancreas. In cattle the organs chiefly affected were the liver (13 cases), followed by the vagina (9 cases), the tail (5) and kidney (4); there were 15 carcinomas and 15 sarcomas. Horses were affected most frequently in the upper digestive tract and nose. Five of the 9 pigs had lymphadenoma of the liver and kidney. Carcinoma of the bile duct was found in the 2 sheep.—M.G.G.

VISMARA, E. (1958). Alcuni dati statistici sull'incidenza delle neoplasie nel cane. [**Statistical data on the incidence of neoplasms in dogs.**]—*Atti Soc. ital. Sci. vet.* **12**, 399-403. [Summaries in English and French.] **3892**

Neoplasms were diagnosed P.M. in 241 of 3,121 dogs (average age $4\frac{1}{2}$ years). The primary site of the tumours was established in 213. Results (which are presented in three tables according to sex and age incidence, breed incidence and primary site) are considered to be in agreement with those of other authors.—T.E.G.R.

LOPPNOW, H. & NIEMAND, H. G. (1959). Zur formalen Genese der Rethothelsarkomatose der Haut bei Hunden. [**Reticulum-cell sarcoma of the skin of dogs.**]—*Zbl. VetMed.* **6**, 393-415. [Summaries in English, French and Spanish. English summary modified.] **3893**

After a short review of cases previously described in domestic animals, the authors

described three reticulum-cell sarcomas in dogs. In all three the first tumours were solitary, recurring later, and eventually they were entirely or mainly seen as metastatic skin tumours in the skin itself. In one case there was a change from the original reticulo-endothelial sarcoma into a spindle-cell sarcoma. After giving reasons for classifying these tumours among the true metastasizing tumours the authors discussed the possibilities of their spread within the skin.

STERNBERG, S. S., POPPER, H., OSER, B. L. & OSER, M. (1959). Gall bladder and bile duct adenocarcinomas in dogs, following chronic feeding of Aramite.—*Amer. J. Path.* **35**, 691-692. **3894**

24 dogs were given in the food between 500 and 1,500 p.p.m. of the insecticide "Aramite" (phoxymethyl chlorodiethyl sulphite) for 46 months. During this period 17 dogs died and adenocarcinomas were found in the biliary tract of 13.—R.M.

HELVE, A. (1959). Om förekomsten av neurinom hos nötkreatur i Finland åren 1952-56. [**Observations on the frequency of neurinoma in Finland in 1952-1956.**]—*Proc. VIIIth Nord. vet. Congr., Helsinki*, 1958 pp. 224-230. [In Swedish. Summary in English.] **3895**

During the period in question neurinomata were recorded in 142 cows slaughtered in southern Finland, a proportion of 4 in every thousand cattle slaughtered. Neurinoma was not found in any male cattle. Three typical cases were described.—R.M.

BIGNOZZI, L. (1958). Osservazioni di tumori delle ossa del cane. [**Bone tumours in the dog.**]—*Atti Soc. ital. Sci. vet.* **12**, 255-259. [Summaries in French and German.] **3896**

Primary bone neoplasms in 12 of 3,300 dogs are described. The data are given in tabular form.—T.E.G.R.

OLSON, C., PAMUKÇÜ, M., BROBST, D. F., SATTER, E. J. & PRICE, J. M. (1959). A urinary bladder tumor induced by the agent of bovine cutaneous papillomatosis.—*Amer. J. Path.* **35**, 672. [Abst. modified.] **3897**

A tumour of the urinary bladder was produced in 13 of 14 calves by the intramural injection of tissue from bovine cutaneous papillomatosis. The initial fibroblastic growth

was accompanied by a polypoid reaction of the mucosa. Changes near the basement membranes were suggestive of early epithelial neoplasia. The pathological features of the condition were somewhat similar to the epithelial hyperplasia and sarcoma-like reaction which occurred when the same provocative material was injected into the skin, causing warts, or when injected into the vaginal mucosa, causing fibropapilloma. The papilloma material also caused a sarcoma-like growth in the skin of the horse. These experimentally reproducible conditions occur naturally, although the tumour of the urinary bladder in cattle is restricted geographically to certain areas of India, Turkey, some European countries, and the Pacific north-west coast of the U.S.A. and Canada.

PAMUKCU, A. M., BROWN, R. R. & PRICE, J. M. (1959). Identification and simultaneous determination of anthranilic acid and 3-hydroxyanthranilic acid in bovine urine.—*Zbl. Vet. Med.* **6**, 361-367. [In English. Summaries in French, German and Spanish. Authors' summary.] **3898**

The occurrence of anthranilic and 3-hydroxyanthranilic acids has been demonstrated for the first time in the urine of dairy cows.

An analytical method is described for the simultaneous determination of these compounds in cow urine.

Dairy cows on normal diets excreted 0.69 to 2.80 mg. of anthranilic acid and 0.54 to 1.69 mg. of 3-hydroxyanthranilic acid per g. of creatinine.

The possible relationship between bladder cancer and the urinary metabolites of tryptophan is discussed.

HANSEN, H.-J. & KROOK, L. (1959). Några endokrint verksamma tumörer hos hund. [Some functional endocrine tumours in the dog.]-*Proc. VIIIth Nord. vet. Congr., Helsinki*, 1958 pp. 886-893. [In Swedish. English summary modified.] **3899**

The authors give a short review of the literature on functional endocrine tumours in the dog and describe the clinical and pathological picture in cases of islet-cell tumours and of parathyroid adenomata. Four new cases of hyperinsulinism and hypoglycaemia caused by a functioning islet-cell tumour are reported. Regarding the parathyroid adenomata, the present paper only gives a short abstract of a

study presented elsewhere [*Acta path. microbiol. scand. Suppl. No. 122* (1957)].

I. MONTEMAGNO, F. (1959). Primer consuntivo de algunas investigaciones experimentales en relación al estudio de la etiología vírica de la leucosis linfática de los bóvidos. [Virological study of bovine leucosis.]-*Proc. XVIIth Int. vet. Congr., Madrid* **2**, 155-156. [In Spanish.] **3900**

II. PAPPARELLA, V. (1959). Contributs a l'etiologie virale de la leucémie lymphatique bovine. [Viral aetiology of bovine leucosis.]-*Ibid.* 157-158. [In French.] **3901**

I. and II. A summary of the authors' experiments on cultivation in embryonated eggs of an agent causing bovine leucosis, its action on lab. animals and its experimental transmission to calves, details of which have been published in Italian [*Acta med. vet.* **4**, 301 (1958); see also *V.B.* **28**, 2221].—R.M.

SACHS, L., FOGEL, M. & WINCOUR, E. (1959). *In vitro* analysis of a mammalian tumour virus.—*Nature, Lond.* **183**, 663-664. **3902**

Stewart's polyoma virus (originating from a spontaneous lymphatic mouse leucaemia), when grown on monolayers of Swiss mouse embryos or cells from adult mouse kidney or bone marrow had a clear cytopathogenic effect. By plaque assay, pure lines could be isolated and are being tested for the type of tumour they produce. Polyoma virus can haemagglutinate at refrigerator temp., g.pig r.b.c. being the most suitable. *In vitro* determination of the growth of the virus in embryo tissue cultures by plaque assay and haemagglutination showed that multiplication of virus begins after 24 hours' incubation and reaches a peak about the 3rd day. Free virus was always less than the total virus.—A. ACKROYD.

ATZENI, G. (1959). Osservazioni su due non comuni casi di leucemia aviaria. [Two unusual cases of avian leucosis.]-*Progr. vet., Torino* **14**, 206; 208-210 & 212. **3903**

Two cases of avian leucosis are described. In one there was erythroblastosis in the myocardium and skin and in the other there were myeloid lesions in the bursa of Fabricius and the skin. The histogenesis of these lesions is discussed.—T.E.G.R.

GEISSLER, H. (1959). Elektrophoretische Untersuchungen von Seren gesunder und leukosekranker Huehner. [Serum electrophoresis in healthy and leucotic fowls.]-*Proc. XVIIth*

Int. vet. Congr., Madrid 2, 355-357. [In German.] **3904**
Lymphomatosis in fowls was accompanied

by decrease in albumin, increase in beta-2 globulin and slight increase in alpha-1 and alpha-3 globulins of the serum—R.M.

NUTRITIONAL AND METABOLIC DISORDERS

OSBALDISTON, G. W. (1959). **The nutrition of young pigs including studies in early weaning.**—*Aust. vet. J.* **35**, 217-224. **3905**

Field investigations of piglet weaning at four weeks are described. Husbandry methods and standards of accommodation are dealt with. Thirteen nutritional treatments were compared as regards growth promotion, palatability, and food conversion efficiency.

Feeding of the sow for milk production is important, because most of the heavier pigs at eight weeks are those which were heavier at four weeks. A wide range of foodstuffs can produce satisfactory growth, but palatability is probably the most important single factor influencing weight gain.

Four week weaning produced no abnormalities in the sow's reproductive behaviour.

—A. CULEY.

CARTAN, G. H. & SWINGLE, K. F. (1958). **A succinoxidase inhibitor in feeds associated with muscular dystrophy in lambs and calves.**—*Amer. J. vet. Res.* **20**, 235-238. **3906**

An ethanol-soluble substance in hay and other feeds from ranches associated with muscular dystrophy, inhibited a succinic oxidase system. The inhibitor (S.I.) is of unknown origin. It is suggested that ewes and cows fed on such grass transmit the disease to their offspring. Alpha-tocopherol partly reversed the S.I. activity. The S.I. (at levels sufficient to inhibit the succinic-oxidase system) had no effect on a xanthine-oxidase system; slight inhibitory effect on a cytochrome-oxidase system and caused complete inhibition of a succinic dehydrogenase system.

—BRENDA M. WILSON.

FREUDENBERG, D. (1959). Ueber Milchkuhanämien im Mitteldeutschen Trockengebiet. [**Anaemia in milch cows in dry areas of central Germany.**]—*Proc. XVIth Int. vet. Congr., Madrid 2*, 163-165. [In German.] **3907**

F. brought up to date his previous account of puerperal haemoglobinaemia in cows, associated with the feeding of sugar-beet leaves [see *V.B.* **26**, 1714].—R.M.

MARTHEDAL, H. E. & VELLING, G. (1959). Lever- og nyrelidelse hos kyllinger. [**Liver and kidney disease in chickens.**]—*Proc.*

VIIIth Nord. vet. Congr., Helsinki, 1958 pp. 250-255. [In Danish. English summary modified.] **3908**

In the years 1954-57, a liver and kidney disease primarily affecting chicks 1-5 weeks old, has been increasing in frequency. This disease has doubtless occurred previously, but only sporadically. Apparently healthy birds suddenly develop symptoms of paralysis. Some lie on their breast with head stretched forward, others on their side with head bent over the back. Death usually occurs in a few hours.

At P.M. examination affected birds are usually in good general condition; gross lesions of the liver and kidneys were swelling and discoloration.

Histological examination revealed abnormal fatty deposits in the liver and kidney cells (tubules and Bowman's capsule) and to a lesser degree in the skeletal and heart musculature.

The fat content of the liver and kidneys was from 3.5 to 8.1% against a normal value of about 3%.

The disease is presumed to be of nutritional origin. Bacteriological examination and inoculation experiments (chicks and chick embryos) yielded negative results.

ZELIOLI, A. (1958). Ricerca sperimentale sull'influenza del 2 metil-2N-propil-1, 3 propandiolo dicarbammato (meprobamato) sull'accrescimento dei broilers. Nota preventiva. [**Effect of meprobamate on growth in fowls.**]—*Atti Soc. ital. Sci. vet.* **12**, 288-290. Discussione: pp. 290-291. [Summaries in English and French.] **3909**

In a small-scale experiment on broiler chicks it was observed that food utilization was better when the diet contained meprobamate, 40 g. per 100 kg.—T.E.G.R.

HOLDER, J. M. (1959). **The effect of antibiotics in creep feed on growth rate and incidence of diarrhoea in suckling pigs.**—*Aust. vet. J.* **35**, 296-300. [Author's summary modified.] **3910**

The effect of the addition of the antibiotics chlortetracycline, penicillin and oxytetracycline to the creep ration, on growth and health of sucking pigs is reported.

Restriction of the daily feed of the sow

and treatment of affected piglets was necessary to reduce diarrhoea.

It is concluded that the antibiotics did not increase the growth rate nor reduce the incidence or severity of diarrhoea in the piglets.

FORBES, M. & PARK, J. T. (1959). **Growth of germ-free and conventional chicks: effect of diet, dietary penicillin and bacterial environment.**—*J. Nutr.* **67**, 69-84. [Authors' summary modified.] **3911**

Chicks hatched and reared in the absence of bacteria and fungi grow 15 to 25% faster than conventional chicks on the same autoclaved casein-starch or soya bean meal-maize diet. The increased growth rate is not due to improved feed efficiency but to the greater appetite of germ-free chicks.

Better growth was obtained when potassium monophosphate and calcium carbonate (rather than calcium phosphate) were provided in the diet.

In repeated experiments over two years using different diets no growth response to penicillin supplements was observed either in the germ-free or in the conventional chicks kept in a room where chicks had not been reared previously. Growth response to penicillin was obtained only after the room was deliberately contaminated with intestinal contents from chicks reared in premises where a growth response to antibiotics occurred regularly.

SHIRLEY, R. L., BEDRAK, E., WARNICK, A. C., HENTGES, J. F., JR. & DAVIS, G. K. (1959). **Effect of dietary protein level on several oxidative enzymes of the heart, muscle and liver of cattle.**—*J. Nutr.* **67**, 159-166. [Authors' summary modified.] **3912**

Twenty heifers 26 months of age were divided into 4 groups and fed rations containing 1.34, 1.06, 0.71 and 0.62 lb. of crude protein a day for 160 to 180 days before being slaughtered.

Succinoxidase decreased in the heart ventricle, but increased in gracilis muscle as the dietary protein decreased. Approximately three times as much lactic dehydrogenase was found in heart as in muscle, but the rations had no effect on the enzyme in either tissue. Xanthine oxidase activity increased in liver in the lower protein groups.

Protein in heart, gracilis muscle and liver decreased as the dietary protein decreased.

MULLINS, J. C. & RAMSAY, W. R. (1959). **Haemoglobinuria and anaemia associated with aphosphorosis.**—*Aust. vet. J.* **35**, 140-147. **3913**

Post-parturient haemoglobinuria (P.P.H.) and anaemia occurred in dairy cows, in areas where severe aphosphorosis occurs. The authors believe that the two syndromes are manifestations of aphosphorosis.

The signs of aphosphorosis were retention of the winter coat, allotriophagia, lameness, decreased production, lordosis and emaciation despite adequate feed. P.M. findings were enlarged and flabby heart with petechiation of the ventricles, icterus in some cases, and fragile bones. Sodium acid phosphate and bone meal were used in treatment. No cases of anaemia or P.P.H. occurred after adequate bone meal supplements were given. The factors possibly contributing to low uptake of phosphorus by the affected cattle are discussed.

—N. WICKHAM.

BARNES, J. E. & JEPHCOTT, B. R. (1959). **Biochemical studies of cattle in the Northern Territory. Part 1. Seasonal variation of blood phosphorus and haemoglobin levels on the Barkly Tableland. Part 2. Seasonal variations of serum inorganic phosphorus, haemoglobin, plasma protein and haematocrit in the Alice Springs District.**—*Aust. vet. J.* **35**, 276-279 & 280-281. **3914**

I. In a severely phosphorus deficient area non-lactating cattle can maintain body phosphorus levels above those required to preserve clinical health, even in a bad season. The drain on phosphorus imposed by lactation depletes reserves. Where dietary phosphorus is insufficient to compensate for this, peg-leg ensues. There is no direct correlation between haemoglobin levels and serum inorganic phosphorus levels. There is an indirect correlation between clinical peg-leg and haemoglobin levels. Peg-leg cattle cannot cover sufficient ground to feed themselves (adequately), consequently haemoglobin levels fall.

II. Results of chemical analyses of blood of cattle in a bad (drought) and good season, respectively, are as follows: serum inorganic phosphate, 2.25, 5.06 mg./100 ml.; plasma protein 7.77, 7.70 g./100 ml.; haemoglobin, 12.4, 11.8 g./100 ml.; cell volume, 36.7%, 35%. The serum inorganic phosphate difference, only, was statistically significant at 0.001 level.

—A. G. CULEY.

HOWELL, J. MCC. & DAVISON, A. N. (1959).

The copper content and cytochrome oxidase activity of tissues from normal and swayback lambs.—*Biochem. J.* **72**, 365-368. [Authors' summary.] **3915**

The copper content of brain and liver from swayback lambs was significantly lower than normal. Cytochrome oxidase activity in brain of swayback lambs was also significantly reduced. The relationship between copper contents and cytochrome oxidase activity is discussed.

CALLENDER, S. T. (1959). **Iron absorption.**—*Brit. med. Bull.* **15**, 5-7 & 8. **3916**

A review of recent work on absorption of iron from the gut.—R.M.

GONZALEZ, G. & GARCIA, J. (1959). Sobre una lesión del folículo y de la fibra de lana y su posible relación con un exceso de hierro en el pasto. [Loss of wool associated with excessive amounts of iron in the pasture.]—*Proc. XVIth Int. vet. Congr., Madrid 2*, 93-95. [In Spanish.] **3917**

Progressive shedding of wool, which occurs particularly in the Maella region of Spain, was due to degeneration of the wool follicles. It was not inherited, as sheep born in the region and transported elsewhere grew normal fleece. Administration of selenium, molybdenum and cobalt did nothing to improve the condition. The iron content of soil averaged 9,891 p.p.m. and of fodder 1,026 p.p.m. Histochemical examination revealed abundant iron in the sweat glands and in the cuticle of the fibre sheaths. Work on the role of iron in wool shedding is in progress.—R.M.

MATRONE, G., HARTMAN, R. H. & CLAWSON, A. J. (1959). **Studies of a manganese-iron antagonism in the nutrition of rabbits and baby pigs.**—*J. Nutr.* **67**, 309-317. [Authors' summary modified.] **3918**

Four experiments, one with mature anaemic rabbits and three with anaemic piglets, were conducted. Excessive manganese in the diet (2,000 p.p.m.) depressed haemoglobin formation in both rabbits and piglets. The minimal conc. of Mn in the diet that interfered with haemoglobin formation was between 50 and 125 p.p.m. A supplement of 40 p.p.m. Fe overcame the depressing effect of 2,000 p.p.m. of Mn on haemoglobin formation in piglets. A supplement of 1,250 or 2,000 p.p.m. of manganese also depressed growth.

ANON. (1959). **How much magnesium for calves?**—*Agric. Res. Wash.* **8**, No. 1 p. 12. **3919**

A preliminary note of work done by J. W. Thomas and M. Okamoto at Beltsville on acute and chronic magnesium deficiency in calves. The highest incidence of calcification in major arteries and heart occurred in milk-fed calves receiving 0.5 or 0.8 g. Mg per 100 lb. body wt. daily. In milk-fed calves daily intake of 2.1 g. per 100 lb. maintained normal Mg content of the blood for a year. Calves fed a normal diet required 0.9 g. per 100 lb. The proportions of Ca, P and Mg in the diet may be important in determining optimum utilization of Mg. —R.M.

UNGLAUB, I., SYLLM-RAPOPORT, I. & STRASSBURGER, I. (1959). Pathologisch-anatomische Befunde bei experimentellem Magnesium-Mangel des Hundes. [Pathology of experimental magnesium deficiency in dogs.]—*Virchows Arch.* **32**, 122-131. [Abst. from English summary.] **3920**

Details were given of anatomical and pathological findings in 16 dogs on a Mg-deficient, and in eight dogs on a normal diet. In deficient dogs there was extensive calcification, particularly of the cardiovascular system, the alveolar septa of the lungs and mucous membrane linings of bronchi, larynx and trachea. Similar lesions, but not so extensive were present in the stomach, skeletal muscles and diaphragm. The serum Mg level was low.

PAREDES, J. R. & GARCIA, T. P. (1959). **Vitamin A as a factor affecting fertility in cockerels.**—*Poult. Sci.* **38**, 3-7. **3921**

A diet deficient in vitamin A and carotene was fed to 10 cockerels (10 months old); 5 others were fed the same diet supplemented with 1,000,000 i.u. of vitamin A per kg. The birds on the deficient diet remained healthy and virile and the volume of semen obtained per ejaculate differed little from the controls. The semen, however, became watery after the 4th week, spermatozoan motility and spermatozoa counts became progressively less and the percentage of abnormal spermatozoa increased. After 10 weeks on the diet 30,000 i.u. of vitamin A per kg. of food was given and the semen became normal in 2 weeks.

—E. J. CASTLE.

MANDELLI, G. (1958). Ulteriore contributo alla conoscenza dell'encefalomalacia del pulcino. [Encephalomalacia in chicks.]—*Atti Soc. ital.*

Sci. vet. **12**, 386-391. [Summaries in English and French.] **3922**

Of 5 chicks with spontaneous encephalomalacia 2 were killed for P.M. and histological examination; the remaining 3 were put on a balanced diet, 2 of them being treated with large doses of alpha-tocopherol i/m. After 33 days the untreated bird died and the others were killed. No typical lesions were found in the treated birds, which, however, showed signs of retarded growth.—T.E.G.R.

MACHLIN, L. J., GORDON, R. S. & MEISKY, K. H. (1959). **The effect of antioxidants on vitamin E deficiency symptoms and production of liver "peroxide" in the chicken.**—*J. Nutr.* **67**, 333-343. [Authors' summary modified.] **3923**

A purified diet was developed which caused encephalomalacia in less than three weeks when fed to chicks.

Additions of 0.1% of the anti-oxidant "Santoquin" (1, 2-dihydro-2, 2, 4-trimethyl-6-ethoxy-quinoline) completely prevented muscular degeneration in chicks fed a diet containing less than 0.09 i.u. vitamin E per lb. It prevented encephalomalacia and exudative diathesis when added to diets containing less than 0.36 i.u. vitamin E per lb.

Using a thiobarbituric acid colorimetric procedure, "peroxide" formation was observed in liver homogenates of chicks fed vitamin E-deficient diets. Addition of vitamin E or "Santoquin" to the diet or directly to the homogenates prevented the liver "peroxide" formation.

SETCHELL, B. P. (1959). **Cerebral metabolism in the sheep. 1. Normal sheep. 2. Irreversible hypoglycaemic coma.**—*Biochem. J.* **72**, 265-275 & 275-281. [Author's summaries.] **3924**

I. Some aspects of the cerebral metabolism of normal sheep have been studied. Oxygen and substrate uptake and the accumulation of metabolic products were studied with slices, with glucose and pyruvate as substrates and in the absence of added substrate. Respiratory quotients were measured and the effect of electrical stimulation on the metabolism of slices was examined with glucose and without substrate.

The resynthesis of creatine phosphate and glycogen *in vitro*, the concentration of glycogen *in vivo* and the movement of potassium, sodium and chloride ions and of water *in vitro* were studied in slices.

The oxidative phosphorylation and oxygen

uptake of homogenates and mitochondria and the hexokinase and cytochrome-cytochrome oxidase (indophenol oxidase) activities were measured.

No differences between the sheep and other species could be found which could account for the resistance of the sheep to hypoglycaemia, except that the oxygen uptake of sheep-brain slices, unlike those of other species, increased slightly with electrical stimulation even without added substrate.

II. The metabolism has been studied of the brains of sheep in irreversible hypoglycaemic coma after the injection of large doses of insulin.

Abnormalities were found in the response of oxygen and glucose uptakes and lactate production to electrical stimulation, in the resynthesis of creatine phosphate, in the reaccumulation of potassium ions *in vitro* and in the oxygen uptake and oxidative phosphorylation by mitochondria.

The metabolism of glucose and pyruvate in the absence of electrical stimulation, the hexokinase and cytochrome-cytochrome oxidase activities and the oxygen uptake and oxidative phosphorylation of homogenates were normal.

The implications of the 'metabolic lesion' are discussed.

FRANCIA, L. (1959). Il trattamento preventivo e curativo del collasso puerperale e delle paralisi post parto dei bovini. L'impiego del diidrotachisterolo. [**Dihydrotachysterol in the prevention and treatment of milk fever.**]—*Clin. vet. Milano* **82**, 14-18. **3925**

Dihydrotachysterol was used as an adjunct to calcium and magnesium for the prevention and treatment of puerperal collapse and postpartum paresis.—T.E.G.R.

SIMESSEN, M. G. (1958). Undersøgelser vedrørende behandling af ketose. [**Investigations on the therapy of ketosis.**]—*Proc. VIIIth Nord. vet. Congr., Helsinki*, 1958 pp. 344-351. Discussion: pp. 350-351. [In Danish. Summary in English.] **3926**

Treatment with glycerin (250 g. by mouth daily for 4 days) cured 24 of 34 cows with ketosis. Similar results were obtained with 150 g. sodium propionate daily for 4 days. Repeating the treatment increased the proportion of cures to 93%. Simultaneous injection of insulin did not improve the proportion of recoveries. 4 of 10 control cows recovered from ketosis without any treatment.—R.M.

- MAYES, P. A. (1959). **Absence of a relation between lipogenesis and ketogenesis in vivo.**—*Nature, Lond.* **183**, 540-541. **3927**

Observations on rats indicated that ketosis

See also abst. 4029 (book, nutrition of fowls).

DISEASES, GENERAL

- GOODMAN, A. A. (1959). **Animal disease control program.**—*Rocky Mountain Vet.* **7**, No. 1 pp. 14-16. **3928**

Problems under study at Colorado University Veterinary College included vibriosis in sheep and in range cattle; vaccination against infectious bovine rhinotracheitis; lip and leg ulceration in sheep; shipping fever in cattle; liver abscesses in beef cattle; brisket disease in cattle; abortion in cattle from poisoning with pine-needles and abortion in ewes from poisoning with loco-weed; urolithiasis in cattle; haemorrhagic clostridial enterotoxaemia in calves.—R.M.

- PEGREFFI, G. & MURA, D. (1959). Problemi attuali e prospettive future in tema di malattie diffusive. [**Problems of disease control in Sardinia.**]—*Progr. vet., Torino* **14**, 23-26 & 28-29. **3929**

A review of the epidemiology and control of the more important diseases of animals in Sardinia.—T.E.G.R.

- WEIDLICH, N. (1959). Über Wildkrankheiten im Regierungsbezirk Arnsberg. [**Diseases in wild animals in the Arnsberg district, Westphalia.**]—*Berl. Münch. tierärztl. Wschr.* **72**, 21-24. [Summary in English.] **3930**

The chief diseases in over 2,000 wild animals from 1948 to 1958 were: deer—gastroenteritis chiefly in winter due to lack of proper food, rabies, infected skull wounds, helminth infestations and anthrax; foxes—rabies, injuries often complicated by bacterial infections, mange, and different intestinal parasites including *Trichinella*; hares—infections with *Pasteurella septica*, streptococci, staphylococci and listeria, pseudotuberculosis, coccidiosis, stomach worms and lungworms; rabbits—myxomatosis.—M.G.G.

- ESPEJA, W. R. (1959). Experiencias sobre planes sanitarios en establecimientos de mas de 20,000 vacunos. [**Control of disease in herds of over 20,000 cattle.**]—*Proc. XVIIth Int. vet. Congr., Madrid* **2**, 619-623. [In Spanish.] **3931**

An account of experience gained in the

was much reduced and sometimes abolished under conditions in which synthesis of fatty acids was defective. Thus a reduced rate of hepatic lipogenesis was not necessarily the major cause of ketosis.—R.M.

Buenos Aires province of Argentina with reference to brucellosis, TB., foot and mouth disease, anthrax, blackleg, pneumo-enteritis, nutritional disorders.—R.M.

- STARON, T. (1959). La patogenesi e il trattamento della mioglobinuria parossistica del cavallo. [**Pathogenesis and treatment of equine myohaemoglobinaemia.**]—*Clin. vet., Milano* **82**, 169-176. **3932**

The disease is ascribed to inhibition of the succinoxidase enzyme system by malonic acid (which is present in large quantities in oats and barley at the time of maturation and is also an intermediate metabolite in the degradation of uracil). From results obtained pentamidine is considered a specific therapeutic agent; it is given i/v, as a 4% soln. in single dose of 0.1-1.0 g., according to the severity of the case, and may be repeated after 5-6 hours if necessary. An account of some cases treated is given.—T.E.G.R.

- KONRÁD, J. (1959). I. Sledování bilirubinaemie při akutních procesech jaterních u koní. II. Sledování bilirubinaemie při vleklých procesech a cirhósách jater. [**I. Bilirubinaemia in acute liver conditions in horses. II. Bilirubinaemia in chronic liver conditions and cirrhosis.**]—*Sborn. čes. Akad. zemědělsk. Věd, vet. Med.* **4**, 395-406 & 407-418. [In Czech. Summaries in English and Russian.] **3933**

I. Bilirubin levels were studied in 24 horses with acute liver conditions such as dystrophy, icterus, enzootic hepatitis, plant poisoning, etc. At the same time liver biopsies were carried out. In acute liver conditions, particularly in those with nervous symptoms, bilirubin levels were up to 14.98 mg.%. Various methods for establishing the bilirubin level were discussed.

II. In most chronic liver conditions in horses the blood bilirubin level did not exceed 2 mg.%. In about 75% of horses with Zdár disease, bilirubin levels were increased, but in the majority this increase was not higher than 3 mg.%. In about 5% the bilirubin level exceeded 6 mg.%.—E.G.

- I. ŠLESINGER, L. (1959). Sledování urobilinů v zažívacím traktu zdravých, hladových koní. [**Urobilin in the digestive system of healthy, fasting horses.**]—*Sborn. čes. Akad. zemědělsk. Věd, vet. Med.* **4**, 381-388. [In Czech. Summaries in English, German and Russian.] **3934**
- II. ŠLESINGER, L. (1959). Přítomnost bilirubinu a urobilinu v Zažívacím aparatu nemocných koní. [**Bilirubin and urobilin in the digestive organs of sick horses.**]—*Ibid.* 389-394. [In Czech. Summaries in English, German and Russian.] **3935**
- I. and II. Bile pigments and urobilin were present in comparatively small amounts in various parts of the digestive system in 15 healthy, fasting horses, and in 18 horses with volvulus, gastric dilatation, obstipation of the colon, torsion of the colon, obstipation of the ileum, invagination, tympanites, tetanus, sepsis, poisoning, liver dystrophy and paralytic haemoglobinaemia. The fluorescence method was considered the most sensitive method for the demonstration of small amounts of urobilin.—E.G.
- FREUDENBERG, F. (1959). Über Spontanfrakturen des Strahlbeins beim Pferd. [**Spontaneous fracture of the navicular bone in horses.**]—*Dtsch. tierärztl. Wschr.* **66**, 57-61. [Summary in English.] **3936**
- Six horses with fracture of one navicular bone were encountered at the veterinary institute at Halle within 2 years, during which period about 1,000 horses were treated at the surgical clinic. Diagnosis was confirmed by radiography.—R.M.
- NILSSON, S. A. (1959). Om fång hos nötkreatur och dess förekomst i Melleruds veterinärdistrikt. [**Laminitis in cattle in the Mellerud district.**]—*Proc. VIIIth Nord. vet. Congr., Helsinki*, 1958 pp. 313-323. Discussion: 323-326. [In Swedish. Summary in English.] **3937**
- During 5 years the author treated laminitis in 166 heifers or cows and 4 bulls. 28 cases were associated with retained placenta, 15 with puerperal metritis, 16 with acetonaemia and 9 with mastitis. Most cases (145) recover after treatment with anti-histamine drugs or after bleeding.—R.M.
- JONES, E. W. (1959). **Obstruction of the stomachs in the adult bovine.**—*Vet. Ext. Quart. Univ. Pa* No. 153 pp. 44-68. **3938**
- J. discussed diaphragmatic hernia and the following conditions affecting the abomasum: torsion, distension, displacement, malignant lymphoma, and ulceration [68 references].—R.M.
- LOPPNOW, H. (1959). Über die verschiedenen Formen des Euterödemes, ihre Entstehung und ihre Folgen. [**Forms of mammary oedema, their cause and their effect.**]—*Zbl. VetMed.* **6**, 46-67. [Summaries in English, French and Spanish.] **3939**
- From clinical study of 181 affected cows and pathological study of 145 udders, L. classified mammary oedema into 3 types: physiological, pathological non-inflammatory (chronic oedema), and inflammatory (associated with mastitis). Aetiology and pathogenesis were discussed.—R.M.
- DALMAZZO, C. (1959). Studio pratico sulle "malattie da tremori". [**Tremors in calves.**]—*Veterinaria, Milano* **8**, 79. **3940**
- Diseases characterized by muscular tremors in calves are briefly discussed. Other symptoms are staggering gait, anaemia, dyspnoea and, occasionally, diarrhoea; the appetite is maintained throughout. The disease lasts 4-5 days ending in recovery or death, from asphyxia due to paralysis of the respiratory muscles or from bronchopneumonia. Good results were obtained with phenothiazine associated with vitamin E. Relapses, it is stated, are usually fatal.—T.E.G.R.
- COLOMBO, S. & CARRARA, O. (1958). Nuovo contributo allo studio del quadro istologico ed istochimico della miocardiodistrofia parcellare nel vitello. [**Histological and histochemical study of myocardial dystrophy in the calf.**]—*Atti Soc. ital. Sci. vet.* **12**, 382-386. [Summaries in English and French.] **3941**
- The histological and histochemical changes in myocardial dystrophy in a calf are described and discussed.—T.E.G.R.
- GREEN, H. F. (1959). **A survey of skin diseases of hair sheep in Kenya and their effect on the finished leather.**—*J. Soc. Leath. Tr. Chem.* **43**, 85-88. [Author's summary modified.] **3942**
- The diseases are described and illustrated as they appeared on the dry raw skins, in sections through lesions and on the finished leather. Scurfiness was the most prevalent (but had little harmful effect on leather), followed by streptothricosis and psoroptic mange. Demodectic mange and pox were relatively uncommon. A table is included to show the relative prevalence of the various

diseases on cattle, goats and sheep. The loss in value owing to disease is distinctly less for sheepskins than for cattle hides and goatskins.

DEMPSEY, M. & GREEN, G. H. (1959). **An abnormality in the skin of sheep.**—*Nature, Lond.* **183**, 909-910. **3943**

When using a new method of fellmongering involving treatment with proteolytic enzymes in place of sulphide and lime, the pelts frequently showed blisters like small air bubbles about 3 mm. in diameter: they occurred only in fine-wooled skins and around the hind shanks. Lamb skins were affected more than sheep skins, in some packs up to 40%. The blisters were not caused by processing nor did they contain fat, micro-organisms nor parasites; the condition has been recognized for many years and the cause is unknown.—E.V.L.

DIMITROV, T. (1959). **[Lactogenic serum for the treatment of post-parturient agalactia in sows.]**—*Vet. Sbir., Sofia.* **56**, No. 3 pp. 35-37. [In Bulgarian.] **3944**

D. claimed good results for the treatment of agalactia by 3 daily s/c injections of formolized serum prepared from the blood of good-milking mares which had foaled 10-20 days previously. The dose of serum for a sow was 30-40 ml. During 4 years 22 cases of agalactia or insufficient milk yield were encountered among 275 farrowings: 19 responded to treatment with the serum.—R.M.

MOLINARI, P. & ABBATE, A. (1959). Su di alcuni "tests" di funzionalità epatica in clinica canina. **[Liver function tests in dogs.]**—*Arch. Vet. Ital.* **10**, 193-211. [Summaries in English, French and German.] **3945**

None of the tests studied was specifically diagnostic of liver insufficiency. However, the cholesterol ester/total cholesterol ratio, the erythrocyte sedimentation rate, the galactose and glycin tolerance tests may give some indication of altered liver function.—T.E.G.R.

EIKMEIER, H. & MOEGLE, H. (1959). Papier-elektrophoretische Serumweißuntersuchungen bei verschiedenen Krankheiten des Hundes. **[Paper electrophoresis of serum proteins in various diseases of dogs.]**—*Zbl. VetMed.* **6**, 538-544. [Summaries in English, French and Spanish. English summary modified.] **3946**

The serum protein changes in various diseases in 450 dogs were so non-specific that electrophoretic study was of no value except

in a few instances. It was useful in the differential diagnosis of ascites, particularly in the nephrotic syndrome.

THOMPSON, S. W., COOK, J. E. & HOEY, H. (1959). **Histochemical studies of acidophilic, crystalline intranuclear inclusions in the liver and kidney of dogs.**—*Amer. J. Path.* **35**, 607-623. [Authors' summary modified.] **3947**

Acidophilic, crystalline intranuclear inclusions were observed within epithelial cells of the liver and kidneys from 13 of 45 apparently healthy dogs. They were not composed of haemoglobin or any of its iron-containing derivatives, nor of minerals, lipids, deoxyribonucleic acid, ribonucleic acid, cholesterol, glycogen, mucin, mucopolysaccharides, polysaccharides, glycoproteins, or glycolipids. Although the inclusions exhibited many characteristics unlike those of known viral inclusions, their possible identity as such must still be considered.

The possible role of altered protein metabolism within affected nuclei was considered, and evidence which might support this theory was adduced, but the true identity and significance of the inclusions remain unknown. [See also *V.B.* **14**, 106.]

BONANI, V. (1959). Ricerche ematologiche nelle nefropatie del cane (*L'anemia nefritica*). **[The blood picture in dogs with kidney disease.]**—*Nuova Vet.* **35**, 53-64. [Summaries in English, German and Spanish.] **3948**

In 30 dogs with chronic nephritis there was a marked increase in the haemoglobin content and colour index, a slight increase in w.b.c. and a decrease in r.b.c. These findings are discussed.—T.E.G.R.

MANCINI, V. (1959). Alopecie neuroendocrine del cane. **[Neuro-endocrine alopecia in dogs.]**—*Vet. ital.* **10**, 230-238. **3949**

Alopecia due to disorders of the nervous and endocrine systems in the dog is discussed.—T.E.G.R.

VAN BOGAERT, L. (1959). **Studies on spontaneous primary encephalitides in the monkey. I. Polio-encephalitis with predilection for the brain stem in the baboon. II. Encephalitis with cortico-striate predilection in the baboon. III. Diffuse non-suppurative meningitides and meningo-encephalitides.**—*J. Neuropath.* **18**, 294-305; 306-312 & 313-323. **3950**

Detailed, illustrated accounts are given of nervous disorders in some 21 monkeys. Most of the material originated from Antwerp Zoological Gardens.—R.M.

BONINI, P. (1959). I sulfoni nella terapia della broncopolmonite enzootica dei giovani animali. [Sulphone therapy in enzootic bronchopneumonia of calves and young pigs.]—*Progr. vet., Torino* **14**, 40-42. 3951

The disease [causal agent not stated] was observed in young trade stock in summer and is considered to be associated with transport fatigue and change of environment. Calves up to 8 (mostly 2-5) months of age and pigs aged 4-6 months were affected. Satisfactory results were obtained with "Baludon" (acetaldehyde bisulphite of diaminodiphenyl sulphone): 3 daily doses of 0.1 ml./kg. i/v or i/m (i/p in calves under 1 month) for calves and 0.2 ml./kg. for pigs.—T.E.G.R.

FURTH, J., UPTON, A. C. & KIMBALL, A. W. (1959). Late pathologic effects of atomic detonation and their pathogenesis.—*Radiation Res. Suppl.* No. 1 pp. 243-263. Discussion: pp. 263-264. 3952

A detailed account of lesions in 3,000 mice which each received between 192 and 920 r from an atomic detonation, and in another 3,000 mice exposed to 400 or 500 r from X-rays. Neoplasia was found in the haematopoietic system, adrenal cortex, lung, pituitary gland, ovary, orbital (Harderian) gland, mammary glands. Other changes included nephrosclerosis.—R.M.

FINKEL, M. P. (1959). Late effects of internally deposited radioisotopes in laboratory animals.—*Radiation Res. Suppl.* No. 1 pp. 265-278. Discussion: pp. 278-279. 3953

A discussion of experiments on the toxicity of radioactive isotopes for mice, with mention of radium, plutonium, uranium, polonium, strontium and calcium.—R.M.

MATSUOKA, O., IKEDA, M. & OHKUBO, Y. (1958). [Studies on radiation injury to domestic animals. I. Effect on the chicken of internal irradiation with radiophosphorus.]—*Jap. J. vet. Sci.* **20**, 151-157 & 241-251. [In Japanese. English summaries modified.] 3954

Phosphorus 32 was administered to cocks by i/p inj. The authors studied changes in absorption, excretion and distribution during 20 days after administration, and the resultant changes in the irradiated dose rate of the various organs. In the case of β -emitter as in the case of P^{32} , the irradiation dose had a much greater action on bone marrow than on the other organs.

Single administration of doses beyond 3 μ c/g. body wt. were lethal: 5 μ c/g. killed 80% of fowls and 10 μ c/g. killed all.

Weight gain was inhibited slightly at 1 μ c/g. (minimum dose tested), while the body wt. did not increase at all at 10 μ c/g. (maximum dose tested).

Weight of organs was altered by irradiation. It decreased in spleen, thymus and testicle, on the contrary it increased in liver, kidney and heart.

Food intake was inhibited by doses beyond 5 μ c/g., but water intake was not affected by any dose tested.

Blood haemoglobin and haematocrit value showed a remarkable decrease, in some cases to about 10% of the control value. Blood sugar gradually increased.

COLLERY, L. (1959). The chronic radiation syndrome.—*Irish vet. J.* **13**, 2-7. 3955

A general account, with reference to American experiments on donkeys and dogs. —R.M.

POISONS AND POISONING

KNOTT, S. G. & MCCRAY, C. W. R. (1959). Two naturally occurring outbreaks of selenosis in Queensland.—*Aust. vet. J.* **35**, 161-165. [Authors' summary modified.] 3956

Selenosis is recorded from two widely differing localities in Queensland.

Chronic selenosis in Cape York Peninsula is associated with *Morinda reticulata* growing on soils of low selenium content.

Acute selenosis in the Richmond district is restricted to a small area. The soil has a high selenium content and all vegetation shows appreciable levels of selenium, *Neptunia amplexicaulis* having an extremely high concentration.

M. reticulata and *N. amplexicaulis* are major accumulating plants, the first of this type reported outside the U.S.A.

Symptoms in horses were depilation of the mane and tail, laminitis and hoof sloughing. There were no visceral lesions.

BOHMAN, V. R., WADE, M. A., TORELL, C., MELENDY, H. & ROBERTSON, J. H. (1959). The recovery of beef cattle from molybdenum toxicosis as influenced by different roughages.—*Growth* **23**, 29-35. [Authors' summary modified.] 3957

During two years weanling calves from a molybdenum excess area were fed two grass

hays, wheat grass and native, with and without supplemental lucerne-brome grass hay. Lucerne plus native grass consistently improved the growth rate and blood composition in comparison to a diet of wheat grass. The higher levels of protein in a lucerne plus native grass diet appear to be the main factor influencing the above changes.

TROPA, E., MADEIRA, A., BANDEIRA, I. & GAVAZZO, M. F. (1958). Estudo histopatológico de órgãos de cavideos e canídeos submetidos à administração de metabisulfito de potássio. [**Lesions caused by potassium metabisulphite in guinea-pigs and dogs.**]—*An. Escola Med. vet., Lisboa* 1, No. 3 pp. 90-103. [Summaries in English and French.] **3958**

Ten g.pigs, given by mouth 1 g. of metabisulphite daily, died after 1-4 days. Congestion and haemorrhages were found in the digestive tract and liver. Four dogs were given by mouth 0.2-0.5 g. metabisulphite daily for two months. Vomiting and bleeding gums occurred and congestion of stomach and liver was found P.M. at the end of the 2 months. The use of metabisulphite as food preservative was deprecated.—R.M.

BORG, K. (1959). Inverkan av betat utsäde på viltfaunan. [**Effects of dressed seed on game birds.**]—*Proc. VIIIth Nord. vet. Congr., Helsinki*, 1958 pp. 394-400. [In Swedish. Summary in English.] **3959**

When birds of different species were fed daily seed dressed with a mercurial preparation, deaths did not occur until after about a month of feeding, and then the mercury content of the organs was 90-100 mg./kg. In non-fatal cases mercury could be detected in organs for up to 6 or 7 months after cessation of ingestion of mercury. The organs of apparently normal pheasants contained up to 12 mg. Hg/kg. Seed dressed with a combination of mercury and aldrin killed pheasants 8-18 days after the start of feeding and their organs contained only 3-4 mg. Hg/kg. Increased mortality among wild birds in parts of Sweden was attributed to the use of seed dressing containing mercury and aldrin.—R.M.

KOŇA, E. (1959). Asimilácia glukózy, bielkovinové spektrum a zákalové reakcie u oviec po podaní chlórovaných uhľovodíkov. [**Glucose tolerance, serum proteins and turbidity reactions in sheep given chlorinated hydrocarbons.**]—*Sborn. čes. Akad. zemědělsk.*

Věd. vet. Med. 4, 351-360. [In Slovak. Summaries in German and Russian.] **3960**

K. studied glucose assimilation in sheep 10 months to 4 years of age, following s/c doses of 0.25 ml./kg. body wt. of carbon tetrachloride alone, or together with oral doses of 0.94 g./kg. body wt. of hexachloroethane. Details were given of paper-electrophoretic analysis of serum protein fractions, total bilirubin content and cadmium sulphate, thymol, and Takata turbidity reactions. In young sheep given both CCl_4 and C_2Cl_6 at the same time, glucose assimilation was reduced, whereas in older sheep it did not appear to be affected.—E.G.

WARE, G. W. & GILMORE, L. O. (1959). **Excretion of BHC in milk from dairy cows fed known amounts of BHC.**—*Res. Circ. Ohio Agric. Exp. Sta.* No. 68 pp. 15. [Authors' conclusions modified.] **3961**

Lactating cows fed 1 to 25 p.p.m. BHC in their diets for 50 days excreted an almost constant amount of BHC in their milk during this period.

Cows fed 125 p.p.m. for 50 days excreted BHC in their milk in increasing amounts.

Following termination of feeding, BHC was detectable in the milk for up to 34 days in animals fed 1 p.p.m., up to 52 days on 5 p.p.m., beyond 102 days on 25 p.p.m. and beyond 171 days on 125 p.p.m.

A direct relationship exists between the dosage of BHC and the amount which appears in milk.

Gamma BHC was not detected in any of the milk samples by bioassay beyond 52 days following termination of BHC feeding.

Pentachlorocyclohexene, a possible BHC metabolite, was not detected in any of the samples during or following feeding.

HARROW, W. T. (1959). **The toxicity of hexachloroethane.**—*Vet. Rec.* 71, 111-112. **3962**

Occurrences of poisoning in cattle dosed with hexachloroethane suggest that susceptibility develops in certain circumstances, such as severe fluke infestation with extensive liver damage, and the consumption of food rich in protein, and of roots, particularly turnips. As animals recover rapidly after i/v injection of calcium borogluconate, susceptibility may be connected with an imbalance of blood calcium. It is recommended that food other than grass and hay be withheld for several days before administration, and that parturient and high-

yielding dairy cows should not be treated. A test treatment should be given to a few animals before the whole herd.—M.G.G.

WIRTSCHAFTER, Z. T. & DEMERITT, M. G. (1959). **Reticuloendothelial response to carbon tetrachloride.** — *Arch. Path.* **67**, 146-158. **3963**

The cellular morphology of the haemopoietic system (lymph nodes, thymus, liver, spleen, bone marrow) was studied in slide imprints from these organs in rats examined (under ether anaesthesia) at intervals from 18 hours to 1 week after a single s/c inj. of carbon tetrachloride (0.4 ml./kg. body wt.); smears of peripheral blood were also studied. The findings (which are reported in detail) were correlated with the histological changes in the liver during the stages of necrosis, inflammation, regeneration and healing. 14 photomicrographs are reproduced. There was evidence of a profound reaction of the haemopoietic system, particularly in the spleen and bone marrow, where it persisted after the liver lesions had healed.—BRENDA M. WILSON.

WAIBEL, P. E. & POMEROY, B. S. (1959). **Effect of diet on the development of beta-aminopropionitrile-induced vascular hemorrhage in turkeys.** — *J. Nutr.* **67**, 275-288. [Authors' summary modified.] **3964**

Levels of 0.04 to 0.08% of beta-aminopropionitrile fumarate were administered to turkeys in a diet of ground corn and soya bean oil meal in order to produce death from aortal and cardiac haemorrhage.

Six fish meal samples at a 15% dietary conc. were found to hasten mortality. In the absence of fumarate, fish meal produced excellent growth.

Feeding ingredients which did not appear to hasten the onset of haemorrhage included: beef tallow, lard, soya bean oil, maize oil, or safflower oil, each at 15% dietary conc., wheat

standard middlings, wheat bran, or ground oats at 20% conc., or lucerne meal or dried whole whey at 10% conc.

DODSON, M. E. (1959). **Oxalate ingestion studies in the sheep.**—*Aust. vet. J.* **35**, 225-233. [Author's summary modified.] **3965**

Grazing experiments with sheep on *Oxalis cernua*, a plant with a high oxalate content (about 12%), demonstrated that sheep may consume a daily average of 750 g. (dry weight) of the plant and void negligible amounts of oxalate. Destruction of the oxalates occurs in the rumen. Incubation experiments demonstrated decomposition during the growth period only. It is suggested that micro-organisms associated with the plant are responsible for this degradation. The possible reasons for the failure of some sheep to tolerate oxalates are discussed.

About 1% of 1,200 sheep run at Roseworthy Agricultural College are lost from oxalate poisoning.

HAEZAERT, J. (1959). **Le bushegwe poison de chasse des Banyambo au Ruanda-Urundi. ["Bushegwe", an arrow poison used in Ruanda-Urundi.]**—*Bull. agric. Congo belge* **50**, 105-116. [Summary in Flemish.] **3966**

The toxic principle of "Bushegwe" is obtained from branches and roots of the tree "Umushegwe", *Carissa oppositifolia*, which may be used alone in a vehicle of vegetable origin, or in combination with parts from various other trees. A special brew consisting of parts from 15 different trees or plants was prepared in the author's presence. A detailed account of the procedure is given. The prepared poison was tested on a goat by implantation under the skin. Symptoms, which set in after 2 min., were abdominal pain, loss of expression in the eyes and cardiac crises; death supervened 10 min. after administration. P.M. findings were stomach contents in the mouth and nostrils.—T.E.G.R.

See also absts. 4031-4033 (handbook of toxicology of insecticides, tranquillizers and fungicides).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

BLISS, J. Q., JOHNS, D. G. & BURGEN, A. S. V. (1959). **Transfusion reactions due to plasma incompatibility in dogs.**—*Circulation Res.* **7**, 79-85. [Authors' summary modified.] **3967**

Transfusion of plasma from another dog was almost invariably followed by urticaria, failure to retain within the circulation the

equivalent of transfused plasma volume and protein, and increased secretion of gastric acid. Cutaneous reaction was abolished and retention of plasma was improved by administration of an anti-histamine drug. Erythrocyte isoagglutinins did not seem to be involved in these reactions.

CANTONI, O. & MOLINARI, P. (1958). Contributo allo studio del 4-clorotestosterone acetato sul metabolismo proteico del cane. [Effect of 4-chlorotestosterone acetate on protein metabolism in the dog.]—*Atti Soc. ital. Sci. vet.* **12**, 733-737. Discussion: pp. 736-737. [Summaries in English and French.] **3968**

Studies with 4-chlorotestosterone were carried out on 18 dogs with various diseases—purulent dermatitis, leptospiral jaundice and acute inflammation of the respiratory tract. No significant changes in nitrogen metabolism were observed. An interesting clinical effect of the drug was a more rapid activation of the metabolic processes manifested by cicatrization of skin lesions and resolution of acute inflammatory processes.—T.E.G.R.

VARELA, G., SANZ, F. & LOPEZ GRANDE, F. (1959). La protoveratrina en la declinación estival de la puesta, en los anades. [Action of protoveratrine on the summer decline in egg production by ducks.]—*Proc. XVIth Int. vet. Congr., Madrid* **2**, 65-67. [In Spanish.] **3969**

An extract of *V. album* alkaloids (protoveratrine) was employed as a hypothermic agent in attempts to counteract the fall in egg production caused by high environmental temp. A proprietary feed supplement containing the drug was added to the ration in the proportion of 400 or 500 g. per 100 kg. 48 ducks were treated (and 30 were left untreated) for 8 weeks or more. It was claimed that treatment increased egg production without reducing body weight.—R.M.

POTPARIĆ, M. (1959). Slučaj adhezivno-eksudativnog pleuritisa konja uzrokovan trovanjem sa carbonei tetrachlorati. [Exudative pleuritis in a horse caused by carbon tetrachloride.]—*Veterinaria, Sarajevo* **8**, 137-141. [In Croat. Summary in English.] **3970**

An account of exudative pleuritis with adhesions, and jaundice in a horse, produced experimentally by intrapulmonary dosing with CCl_4 .—E.G.

LARSEN, L. H., LOOMIS, L. N. & STEEL, J. D. (1959). Muscular relaxants and cardio-vascular damage; with special reference to succinyl-choline chloride.—*Aust. vet. J.* **35**, 269-275. [Authors' summary modified.] **3971**

Two groups of horses were given intravenous injections of succinylcholine chloride, one group the normal casting dose of

0.17 mg./kg. and the second 0.05 mg./kg. The changes in the heart rate and respiratory rate were recorded and the time for the animals to regain their feet. Autopsies were performed immediately on both groups and on a third control group destroyed by shooting.

Dose rate had little effect on the observable response.

Petechiae, "wire brush" and ecchymotic haemorrhages in the myocardium are reported, mostly in the right ventricle.

The electrocardiograms revealed varying degrees of cardiac arrhythmia indicative of acute myocardial injury.

TEŠIĆ, D. & DIMITRIJEVIĆ, B. (1959). Delovanje hlormpromazina na domaće životinje. II. Uticaj na trijas pasa, konja i goveda. [Effect of chlorpromazine on domestic animals. II. Effect on pulse, respiration and body temperature in dogs, horses and cattle.]—*Vet. Glasn.* **13**, 349-356. [In Croat. Summary in English.] **3972**

An account of the reduction by chlorpromazine of the pulse rate, respiration rate and body temp. in 18 dogs, 10 horses and 5 cattle, the extent of these reductions depending on the dose and method of administration. In cattle, in addition, the frequency of ruminal contractions was reduced.—E.G.

POSPÍŠIL, J., KOMÁREK, J. & POSPÍŠILOVÁ, B. (1959). Chlorpromazin a změny krevního obrazu. III. Sdělení. Vliv chlorpromazinu na amoeboidní aktivitu leukocytů. [Chlorpromazine and its effect on the blood picture. III. Effect on amoeboid activity of leucocytes.]—*Sborn. čes. Akad. zemědělsk. Věd, vet. Med.* **4**, 361-368. [In Czech. Summaries in English, German and Russian.] **3973**

Chlorpromazine reduced, at least temporarily, the amoeboid activity of leucocytes in six dogs, given i/m doses of 3 mg./kg. body wt. After 24 hours leucocytes appeared to resume their normal activity. It was concluded that the drug reduced resistance to infection in treated animals.—E.G.

KROCZA, W. E., LEIMER, R. & ZACHERL, M. K. (1959). Über den Nachweis des Pervitins im Pferdeharn. [Demonstration of methylamphetamine in horse urine.]—*Zbl. VetMed.* **6**, 545-552. [Summaries in English, French and Spanish.] **3974**

This drug, which is also known as

"Methedrine" or "Pervitin", has been used unlawfully as a stimulant for racehorses. It can be detected in urine 2-7 hours after

administration by the dithiocarbamate reaction, after volatile bases have been removed by chromatography.—R.M.

See also absts. 3690 ("trisulfan" for wing gangrene); 3717 (sensitivity of *Pf. whitmori* to antibiotics); 3718 (swine erysipelas serum and penicillin); 3742 ("pecudin" and sulphadiazine in brucellosis); 3770 (antibiotics in pasteurellosis); 3779 (actinomycosis); 3780 (bovine contagious pleuropneumonia); 3787 (drug resistance of trypanosomes); 3797-3798 (coccidiosis); 3870, 3960 3963 & 3970 (parasiticides); 3875, 3884 & 3890 (anthelmintics); 3909-3911 (antibiotics and other food supplements); 3925 (dihydrotychysterol in milk fever); 3926 (ketosis); 3951 (sulphone in bronchopneumonia of calves); 3993 (preservation of veal by chlortetracycline); 4031-4033 (handbook of toxicology of insecticides, tranquilizers and fungicides).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

I. COMFORT, A. (1958). **The longevity and mortality of Thoroughbred mares.**—*J. Geront.* 13, 342-350. 3975

II. COMFORT, A. (1959). **The longevity and mortality of Thoroughbred stallions.**—*Ibid.* 14, 9-10. 3976

I. & II. C. extracted statistics from the General Stud Book over the periods 1860-1884 for mares and 1910-1921 for stallions. The expectation of life of stallions appeared to equal, or possibly to exceed, that of mares.

—R.M.

NAY, T. (1959). **Sweat glands in cattle: histology, morphology, and evolutionary trends.**—*Aust. J. agric. Res.* 10, 121-128. 3977

In the sweat glands of 221 cattle of various breeds the range of gland volume (based on 10 glands per animal) was very wide. Although the glands varied greatly in shape, three main types (tubular, baggy and club-shaped) were distinguished. The glands, irrespective of size, were all of the same type in any one animal. When the cattle are arranged according to sweat gland volume the order is the same as if they were ranked according to their known or probable heat tolerance.—A. G. LYNE.

BOAZ, T. G., TOWERS, K. G. & FRANKLAND, B. (1958). **Observations of the eruption of central permanent incisor teeth in sheep.**—*Emp. J. exp. Agric.* 26, 344-350. 3978

Although mated and unmated ewe lambs lost their milk incisor teeth at about the same age, the age at which eruption of the central pair of permanent incisors was completed was greater in the former: by 4 weeks in the case of Scottish half-bred Suffolk lambs and by 2 weeks in Clun Forest/Suffolk lambs. Milk secretion rather than pregnancy appeared to be the significant factor. In the unmated lambs, the average age at completed eruption was 3 weeks greater for the Clun Forest/Suffolk crosses compared with the half-bred Suffolk crosses. The progress which lambs had made to weaning, was significantly correlated with their subsequent age at eruption.—A. ACKROYD.

ARBUCKLE, J. (1959). **How much milk do beef cows give?**—*Qd agric. J.* 85, 173-178. 3979

Results are given of an investigation in Queensland on the quantity of milk produced by the beef cow, and the influence of subsequent pregnancy on lactation. Comparisons are made of milk production of cows which calved in September with those which calved in November, and of growth rates of the calves. The milk requirements of calves and body weight changes of cows are also discussed.—A. CULEY.

GORDON, H. A. (1959). **Morphological and physiological characterization of germfree life.**—*Ann. N.Y. Acad. Sci.* 78, 208-220. [Author's summary modified.] 3980

Germ-free chickens, rats, and mice compared satisfactorily with normal stock in development and general health.

In germ-free chickens and rats (and in mice, though fewer were examined), such organs as would normally be in contact with the flora were lighter in weight and contained less water, reticuloendothelial tissue and connective tissue than in controls. It is assumed that these characteristics of the germ-free animal are caused primarily by the lack of the stimulation that would be caused by flora.

Enlargement of the caecum, characteristic of germ-free rodents, appears to have a more complex aetiology. Slight retardation of growth and adrenal enlargement were also noted: it is suggested that these may result from the enlargement of the caecum.

MIYAKAWA, M. (1959). **The lymphatic system of germfree guinea pigs.**—*Ann. N.Y. Acad. Sci.* 78, 221-236. [Author's conclusions modified.] 3981

The development of lymphatic tissue in germ-free g.pigs was less advanced than in conventional animals. Typical clear-centred nodules were never found in the lymphatic tissue of germ-free animals, but such nodules were readily formed after mono-contamination with a mildly toxic species of coccus.

HEYNDRIKX, G. V. (1959). **Investigations on the lipids, proteins, lipo- and glycoproteins of udder-lymph and plasma in cattle.** — *Quart. J. exp. Physiol.* 44, 264-270. [Author's summary modified.] **3982**

Udder lymph resembles the lymph draining from most other organs in its content of lipid, protein and glycoprotein. The composition of the lymph is apparently more variable than that of the plasma. Protein and lipid occur in lower concentrations in lymph than in plasma. The concentration of phospholipid in udder lymph is very low. The possible connexion with milk synthesis is discussed.

WEISS, H. S. (1959). **Variation in appearance, cholesterol concentration, and weight of the chicken aorta with age and sex.** — *J. Geront.* 14, 19-24. **3983**

The development of spontaneous aortic arteriosclerosis was studied in 4 generations of White Leghorn cocks and hens. As the birds got older the abdominal aorta was more often affected than the thoracic aorta. Cholesterol concentration increased progressively in affected segments of aorta.—R.M.

I. CHARTON, A., FAYE, P., HERVY, A. & LEFRANÇOIS, C. (1959). Fluctuations des taux de phosphore inorganique, calcium total et magnésium total dans le sérum de brebis durant un cycle d'élevage. [**Inorganic phosphorus, calcium and magnesium in serum of ewes during a breeding cycle.**] — *C.R. Acad. Sci. Paris* 248, 2407-2409. **3984**

II. CHARTON, A., FAYE, P., HERVY, A. & LEFRANÇOIS, C. (1959). Étude des taux de phosphore inorganique, calcium total et magnésium total dans le sérum d'agneaux de la naissance à l'âge de six mois. [**Inorganic phosphorus, calcium and magnesium in serum of lambs between birth and six months of age.**] — *Ibid.* 3049-3051. **3985**

I. & II. Changes in blood composition are tabulated. The problems raised by wide ranges of normal values were discussed.

—R.M.

VAN KLINKENBERG, G. A. (1959). Das Eiweiss-Spektrum im Serum junger Ferkel. [**The serum protein picture in young piglets.**] — *Zbl. VetMed.* 6, 8-13. [Summaries in English, French and Spanish.] **3986**

The author confirmed the findings of Rook *et al.* [*K. VetHøjsk. Aarsskr.* 1951 p. 81], especially the existence during the first 7 days of age of an electrophoretic fraction lying between albumin and alpha-globulin ("fraction

X"). Other intermediate fractions were recognized, including a pro-albumin fraction in piglets with severe digestive disturbances.

—R.M.

MOLINARI, P. & NAVA, G. A. (1959). Osservazioni sul tasso ematico del ferro nelle bovine durante la gravidanza. [**Iron content of the blood in pregnant cows.**] — *Nuova Vet.* 35, 104-106. **3987**

In 11 cows, throughout pregnancy, the iron content of the blood did not show any variations which would suggest draining of maternal iron by the foetus. It is considered that the foetus utilizes maternal iron without building up a reserve of its own; this would, therefore, account for neonatal iron deficiency.

—T.E.G.R.

MOLINARI, P. & NAVA, G. A. (1959). Contributo allo studio della glicemia nella bovina durante la gravidanza. [**Sugar content of the blood in pregnant cows.**] — *Arch. Vet. Ital.* 10, 35-39. [Summaries in English, French and German.] **3988**

In 13 pregnant cows there was an increase in the sugar content, especially during the 9th month. This is considered to be associated with altered endocrine function or with a progressive increase of products of foetal metabolism stimulating sugar production by the liver or reducing sugar metabolism in the tissues.—T.E.G.R.

MIZUNO, N. S., PERMAN, V., BATES, F. W., SAUTTER, J. H. & SCHULTZE, M. O. (1959). **The life span of thrombocytes and erythrocytes in normal and thrombocytopenic calves.** — *Blood* 14, 708-719. [Summary in Interlingua.] **3989**

Platelets and r.b.c. in calves were labelled with P^{32} by i/m inj. of DFP 32 (diisopropylphosphorofluoridate). The life span of platelets was about 10 days and that of r.b.c. 110-120 days. There was no significant difference between the life span of platelets and r.b.c. of normal calves and those of calves with artificially induced thrombocytopenia.

—T.E.G.R.

KOLB, E. & MÜLLER, A. (1959). Zum Vorkommen und zur Bestimmung des Fibrinogens im Plasma von Haustieren. [**Fibrinogen in the plasma of domestic animals.**] — *Zbl. VetMed.* 6, 14-27. [Summaries in English, French and Spanish.] **3990**

Average values for fibrinogen in plasma from 30 or 40 healthy animals of each species

were horse 308 mg. %; ox 494; pig 530; dog 213. Values for foals, calves and pregnant mares were above average.—R.M.

WIDDOWSON, E. M. & SOUTHGATE, D. A. T. (1959). **Haemorrhage and tissue electrolytes.**—*Biochem. J.* **72**, 200-204. [Authors' summary modified.] **3991**

The concentrations of chloride and of sodium in the muscle of man, pig and fowl are reduced by about one-third by severe bleeding

See also abst. 4034 (implantation of ova).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

JESTER, W. R., WRIGHT, W. W. & WELCH, H. (1959). **Antibiotics in fluid milk. Fourth nationwide survey.**—*Antibiot. & Chemother.* **9**, 393-397. [Summary in Spanish p. 444. Authors' summary modified.] **3992**

Samples of raw milk from 16 areas of the U.S.A. were examined for residues of penicillin, streptomycin, the tetracyclines, bacitracin, polymyxin, and neomycin. Penicillin (from 0.006 to 1.22 units/ml.) was found in 3.7% of 1,170 samples. One penicillin-positive sample also appeared to contain streptomycin. The presence of penicillin was confirmed by the penicillinase identity test. Twenty-two additional samples appeared to contain one of the tetracyclines, and one other sample contained bacitracin-like activity, but there are no specific tests for small quantities of these drugs.

GOLA, J., SINGER, V. & LUKEŠOVÁ, M. (1959). **Využití chlortetracyklinu k prodloužení čerstvosti masa přepravovaných jatečných telat.** [Use of chlortetracycline for the preservation of veal.]—*Sborn. čes. Akad. zemědělsk. Věd, vet. Med.* **4**, 495-506. [In Czech. Summaries in English, German and Russian.] **3993**

The authors discussed methods of preservation of veal with chlortetracycline and the chemical quantitative determination of the antibiotic in the carcass. The method of choice

before death. The rat does not react in this way; this may be because rats do not bleed as freely as larger animals. The gross composition of the cells is probably little altered by bleeding.

The inulin 'space' in the skeletal and cardiac muscle of a new-born pig was a little less than the chloride 'space' but it was more than twice as large in the liver; inulin cannot be taken to measure the extracellular space in that organ.

of preserving veal with chlortetracycline was by wrapping carcasses in cloth soaked in a 50 mg.% aqueous soln. of the antibiotic.—E.G.

GINSBURG, A. G. & IVANOV, A. D. (1958). **[Organization of veterinary services in the U.S.S.R.]** pp. 527. Moscow: Gosud. izd. sel'skokhoz. literatury. 10r. 10k. [In Russian.] **3994**

The main purpose of this book is to define the duties of the veterinary surgeon on the farm and in charge of a district. It describes in detail the organization of methods for the control of disease and organization of work in town and country clinics, laboratories and abattoirs. There is advice on how to fill in returns and to prepare annual estimates. Although the book is not a directory, it names the 12 veterinary research institutes, the 31 veterinary research stations and 8 miscellaneous institutes which together employ 606 research workers. There are about 80 photographs of veterinary surgeons at work and several plans of typical clinics and laboratories. The number of veterinary surgeons in 1956 was 42,140 and veterinary assistants (feldshers) 49,720. A chart (page 32) shows the chain of command in the state veterinary service. This book and V. M. Koropov's (1954) together provide a full account of veterinary services in the Soviet Union.

—R.M.

See also absts. 3820 (survival of tick-borne encephalitis virus in milk and products); 3961 (BHC in milk); 4030 (livestock diseases and organization of veterinary services in Europe).

REPRODUCTION AND REPRODUCTIVE DISORDERS

WHITE, I. G. (1959). **Studies of semen.**—*Aust. J. Sci.* **21**, 208-214. **3995**

W. reviews past and present research on semen, carried on in the Department of

Veterinary Physiology, University of Sydney. A comparative approach, using ram, bull, rabbit, human, dog and fowl semen, has been attempted.—A. CULEY.

CHIEFFI, A. & MASOTTI, N. (1959). Spremuta di pomodori come base per la preparazione di liquido diluente dello sperma bovino. [Tomato juice as diluent for bovine semen.] —*Zootec. e Vet.* **14**, 174-176. 3996

The diluent consists of 3 parts of tomato juice and 1 of egg yolk. In diluted semen kept at 2° to 5°C. for 5-6 days motility was 50-60%; in some samples it was 40% after 10 days.—T.E.G.R.

KAMAR, A. R. (1959). The differentiation of live from dead sperms in fowl semen.—*Stain Tech.* **34**, 5-7. 3997

A stain was prepared from 0.1 g. bromphenol blue and 0.2 g. nigrosin in 100 ml. M/15 phosphate buffer at pH 7.5. In smears of cock semen, dead spermatozoa stained dark violet and live ones did not take up the stain.—R.M.

ZODER, H.-F. (1958). Erfahrungen mit der Konservierungsmethode von Bullensamen durch Kohlendioxyd. [Preservation of bull semen with carbon dioxide.]—*Inaug. Diss., Munich* pp. 90. 3998

Semen from 13 bulls was stored for 7 days at room temp. in the Illini variable temperature diluent. The conception rate in 684 first inseminations was 71%. This method of storage is not recommended for practical use, on account of the rapid growth of fungal contaminants.—M.G.G.

WALES, R. G., WHITE, I. G. & LAMOND, D. R. (1959). The spermicidal activity of hydrogen peroxide *in vitro* and *in vivo*.—*J. Endocrin.* **18**, 236-244. [Authors' summary.] 3999

The effect of hydrogen peroxide on the motility of bull, fowl, dog, ram, mouse, rabbit and human spermatozoa has been studied *in vitro*. Although 3 p.p.m. peroxide had a small but significant action on bull and fowl spermatozoa, those of the other species were more resistant, and 30-300 p.p.m. was usually required to produce substantial spermicidal effects, and even 3,000 p.p.m. failed to immobilize rabbit spermatozoa completely.

Ram, dog and rabbit spermatozoa were rendered more susceptible by washing, and the seminal plasma was found to decompose hydrogen peroxide. The agent, in rabbit seminal plasma at least, is probably catalase.

Hydrogen peroxide given orally to mice and rabbits did not affect either the spermatozoa or fertility.

BLOM, E. & CHRISTENSEN, N. O. (1959). Cyster og cysteagtige dannelser i tyrens kønsorganer.

[Cysts and cyst-like formations in the genital organs of the bull.]—*Proc. VIIIth Nord. vet. Congr., Helsinki*, 1958 pp. 578-583. [In Danish. Summary in English.] 4000

Details of this work have already been published in English [*V.B.* **28**, 573].—R.M.

KÖNIG, H. (1959). Zur Pathologie des Bullenhodens. [Pathology of bull's testicles.]—*Dtsch. tierärztl. Wschr.* **66**, 65-70. 4001

An illustrated account of hypoplasia, degeneration, inflammation and fibrosis. —R.M.

WIDMAIER, R. (1959). Nebennierenrindennötchen im Nebenhodenkopf bei Ziegenböckchen. [Adrenal cortical nodules in the caput epididymidis of the goat.]—*Zbl. VetMed.* **6**, 368-379. [Summaries in English, French and Spanish. Author's summary modified.] 4002

The testicles in 8 horned and 27 unhorned goats and the testicle-like structures in 16 intersexes were studied histologically. Adrenal cortical nodules of varying sizes were found in 10 of 51 cases in the head of the epididymis between the pampiniform plexus and the vasa efferentia. They occurred 3 times in the 16 intersexes, 6 times in the 27 unhorned and once in the 8 horned ones. The exact position and size relations of the inclusions are described and illustrated. Replacement by connective tissue and fatty change is seen as a form of resorption. Insufficient nutrition is certainly not the cause of this regression in all cases because one sometimes finds the inclusion particularly well supplied with capillary vessels. The author discusses the possibility of a function performed by this cortical material. A relationship between the frequent occurrence of dystopic adrenocortical tissue in the head of the epididymis and the high number of intersexes in the goat is not excluded.

LEIDL, W. & BRONSCH, K. (1959). Sexualfunktion und Ketosteroidausscheidung beim Ziegenbock. [Sexual function and ketosteroid excretion in male goats.]—*Zbl. VetMed.* **6**, 28-36. [Summaries in English, French and Spanish. English summary modified.] 4003

In 4 male goats the relationship between season of year, composition of semen and excretion of 17-ketosteroids in urine was studied over two years. The quantity of semen produced at weekly ejaculations and its fructose content were greatest during the autumn mating period. Sperm density was lowest during this period. Excretion of keto-

steroids in urine was higher at mating time. Seasonal rhythm in sexual function of male goats appeared to be limited to the activity of the male sex hormone, and did not affect spermatogenesis.

ROBINSON, K. W. (1959). **Adrenal cortical function in the pregnant sheep.**—*Nature, Lond.* **183**, 690-691. 4004

Four ewes were observed from mating to a few weeks after lambing. Two of these animals received i/m injections of corticotrophin (ACTH) during the last 3 months of pregnancy. During the greater part of pregnancy, urinary steroid excretion did not differ significantly from the seasonal fluctuation observed in controls, but there was a marked drop in steroid output towards the end of pregnancy in both the ACTH-treated and untreated animals. The output remained low following parturition, rose during the lactation period and dropped when lactation was terminated experimentally. Four possible reasons were adduced for the fall in steroid excretion just before parturition, but further work is required before an adequate explanation can be formulated. This investigation is part of a more extensive study on a possible relationship between adrenal function and birth weight of the lamb.—E.V.L.

DENNY, J. E. F. M. & HUNTER, G. L. (1958). **Synchronisation of the oestrous cycle in sheep.**—*S. Afr. J. agric. Sci.* **1**, 381-388. [In English. Summaries in French and Afrikaans. Authors' abst. modified.] 4005

Ten mg. progesterone i/m was injected daily, for 20 days, in 31 Merino and 11 Dorper ewes. 24 hours after the last injection, the Dorpers and 10 of the Merinos received s/c 500 i.u. of pregnant mare's serum. Except for one ewe which did not receive P.M.S., all the ewes showed oestrus 52-96 hours after the last injection of progesterone, and 70.7% were served within 58-82 hours. Ewes given P.M.S. began oestrus earlier, but the timing was no more precise than in those given progesterone only. There was no significant difference between breeds in the time of onset of oestrus. It is suggested that synchronization of the oestrous cycle in ewes may be of value in large-scale insemination of sheep in S. Africa.

RADFORD, H. M. (1959). **Variation in the incidence of twin ovulation in Merino ewes on a constant plane of nutrition.**—*Aust. J. agric. Res.* **10**, 377-386. [Author's summary modified.] 4006

The incidence of twin ovulation, determined by laparotomy at intervals of 10 or 12 weeks, was studied in 40 ewes kept apart from rams and held at constant body weight throughout the 16 months of the experiment. There was a marked peak in the proportion of twin ovulations in the late autumn and a trough in the spring. There was a similarly timed but less apparent variation in the occurrence of oestrus in 9 other ewes run with rams continuously.

It is concluded that the variation in the incidence of twin ovulation was controlled by changes in the physical factors of the environment.

CHURÝ, J. (1959). K otázce tak zvaného somatického oplození. [Changes in the genital system of infantile or spayed female rats, following insemination with bull semen.]—*Sborn. vys. Šk. zemědělsk. les. Fak., Brno, Ser. B.* **7**, Nos. 1-3. pp. 131-140. [In Czech. Summaries in German and Russian.] 4007

Doses of 0.1-0.2 ml. of bull semen were used for the insemination of 21 infantile female and 15 spayed adult rats each. In infantile rats insemination produced growth of uterus and vagina and ripening of follicles. Histologically changes resembled those produced by oestradiol benzoate. The author studied levels of desoxyribonucleic acid, ribonucleic acid and alkaline phosphatase in the uterine epithelium at certain times after insemination and discussed the effect of nucleic acids, liberated during the process of semen resorption, on the metabolic processes in somatic cells of the genital tract. There are eight photomicrographs of changes in vagina, uterus and ovaries, and four photographs of the gross P.M. appearance of the genital tract. —E.G.

BU, I. & SKJERVEN, O. (1959). Undersøkelser over uterin infusjon av sulfadimidin i brunst og lutealfase av seksualsyklus. Sulfadimidinkonsentrasjonen i blodserum før og etter ligering av egglederne på ku. [Studies on uterine infusion of sulphadimidine during oestrus and the luteal phase of the sexual cycle. Blood concentration of sulphadimidine before and after ligation of the oviducts in the cow.]—*Proc. VIIIth Nord. vet. Congr., Helsinki*, 1958 pp. 614-619. [In Norwegian. Summary in English.] 4008

Continuing previous studies [V.B. **26**, 1441] the authors found that when uterine infusion was done during oestrus some of the

infused fluid passed through the oviducts. No fluid passed through when infused during the luteal stage of the oestrous cycle.—R.M.

I. BROOME, A. W. J., LAMMING, G. E. & WOODBINE, M. (1959). **Studies on the relationship between ovarian hormones and uterine infection. I. The effect of ovarian hormones on the bactericidal activity of blood plasma.**—*J. Endocrin.* **18**, 209-219. 4009

II. BROOME, A. W. J. & LAMMING, G. E. (1959). **Studies on the relationship between ovarian hormones and uterine infection. II. The effect of ovarian hormones on the antibacterial activity of the uterine environment. III. The role of the antibody system in uterine defence.**—*Ibid.* 220-228 & 229-235. [Authors' summaries.] 4010

I. Blood plasma was collected under aseptic conditions from cows at various stages of the oestrous cycle; from steers; from oestrous, pseudopregnant and ovariectomized rabbits, and from ovariectomized rabbits treated with either stilboestrol dipropionate or progesterone.

The antibacterial activity of plasma samples was tested by three methods using four organisms commonly associated with uterine infection. These methods were: diffusion on seeded agar plates, turbidimetric measurement of bacterial growth, and direct counting.

These methods failed to demonstrate any bactericidal factor in blood plasma which can be influenced by ovarian hormones. The results suggest that the mechanisms responsible for the differing bactericidal activity of uteri from animals under the influence of oestrogen and progesterone are not associated with differences in the antibacterial properties of their blood plasma.

II. Bacterial cultures contained within semi-permeable membrane sacs placed in the uterus of cows or in one uterine horn of rabbits developed normally, and the rate of bacterial growth was not influenced by the ovarian activity of the test animal. Similar cultures placed directly into the control uterine horn of rabbits were eliminated in oestrous animals. This showed that bacteria grow satisfactorily in the uterine fluids of both oestrous and dioestrous animals provided they are isolated from the uterine endometrium.

The ovarian status of the animal did not influence the growth of bacteria in washings obtained from the uteri of both cows and rabbits when tested *in vitro*. No differences

could be detected in the rate of growth of bacteria in extracts of uteri from oestrous and pseudopregnant rabbits. Injections of pilocarpine to increase the rate of flow of uterine secretions failed to influence the susceptibility of pseudopregnant rabbits to uterine infection.

Studies were completed on the rate of uterine antibody production in oestrous rabbits following intrauterine immunization with *Escherichia coli*. No local antibody response was found to occur until 8 days after immunization, and it was concluded that this response is too slow to account for antibacterial action of the oestrous uterus.

In experiments to test the effect of systemic and intrauterine immunization of rabbits with *E. coli* antigen on the subsequent antibacterial activity of their uteri against *E. coli*, it was shown that intrauterine, but not systemic, immunization would significantly increase the antibacterial activity of the uteri of both oestrous and pseudopregnant rabbits.

The significance of these findings in relation to uterine infection is discussed.

RASBECH, N. O. (1959). **Undersøgelser over forskellige terapiformers virkning på frugtbarhed og mølkeproduktion ved retentio secundinarum hos koen. [The effect of various treatments on the fertility and milk production of cows with retained placenta.]**—*Proc. VIIIth Nord. vet. Congr., Helsinki*, 1958 pp. 607-612. Discussion: 612-613. [In Danish. Summary in English.] 4011

Milk production in cows with retained placenta was lower when the placenta was not removed (399 cows) than when it was completely removed (438 cows). Subsequent fertility did not appear to depend on whether or not the placenta was removed, but the fertility of 61 cows treated with pituitary extract was below average. The use of antibiotic pessaries for retained placenta did not improve subsequent fertility.—R.M.

AVELLINI, G. (1958). **Quadro ematico e midollare in un vitello con cardioangiopatia congenita. [Blood and bone marrow picture in congenital heart disease in a calf.]**—*Atti Soc. ital. Sci. vet.* **12**, 687-692. [Summaries in English and German.] 4012

In a calf with persistent common arterial trunk there was marked erythrocytosis (17.54 million/cu. mm.), increased haemoglobin content (105-110%), and erythroblastosis.

—T.E.G.R.

ASHTON, G. C. (1959). β -Globulin polymorphism and early foetal mortality in cattle.—*Nature, Lond.* **183**, 404-405. 4013

Six types of beta-globulin have been described in British cattle [*V.B.* **29**, 115]. There seemed to be an antagonism between dams possessing the β^B type and embryos possessing the same type, resulting in a dearth of β^B offspring. Such antagonism could account for the early foetal mortality which

See also absts. 3721 (*Pseudomonas* infection in bulls); 3722 (puerperal disorders in sows); 3730 (effect of chronic pullorum disease on cock testicles); 3758-3766 (*V. fetus* infection in cattle); 3768 (pituitary lesions in bitches with pyometra); 3771 (mycotic abortion in cattle); 3921 (effect of vitamin A on fertility in cockerels); 4034 (implantation of ova).

other workers have estimated to cause the loss of 12% of foetuses between 1 and 3 months of pregnancy.—R.M.

RAPACZ, J. & DUBISKI, S. (1958). Serological test for determination of parentage in cattle.—*Nature, Lond.* **182**, 1176. 4014

A method is described for determining the parentage of cattle by using two polyvalent sera.—A. ACKROYD.

ZOOTECHNY

DORN, P. (1959). Desinfektionsmöglichkeiten von Bruteiern. [Disinfection of eggs for incubation.]—*Tierärztl. Umsch.* **14**, 74-76. 4015

Eggs contaminated externally with *Salmonella pullorum* and Newcastle disease virus were not sterilized by a dose of 9.6-700 mW sec./cm.² of ultra-violet light, nor by immersion for 15 min. in a 0.4% suspension of "Delegol-T", a chlorinated phenol preparation. Beta-rays were unsuitable because of their high penetrating power. Both organisms were killed when contaminated eggs were fumigated for 30 min. at incubation temp. with a mixture of 35 ml. formaldehyde and 25 g. potassium permanganate per cubic metre. The use of gas-tight cabinets is recommended for the fumigation of eggs.—M.G.G.

ABE, H., TANAKA, J., TAKAKU, H., IWAMA, Y., HIRAYAMA, T. & MURATA, M. (1959). [Oral anaesthetics for capturing stray dogs.]—*J. Jap. vet. med. Ass.* **12**, 159-162. [In Japanese. Abst. from English summary.] 4016

Pentobarbitone (0.2-0.5 g.) concealed in meat produced anaesthesia within 30 min. which lasted for about 6 hours. Mixtures of equal parts pentobarbitone and one of three other barbiturates could also be used.—R.M.

LAVERS, D. W. (1959). Veterinary aspects of the export of stock.—*Aust. vet. J.* **35**, 148-153. 4017

L. deals with disease control and marketing aspects of the export of stock by sea and air, and discusses in detail legal requirements, accommodation, numbers and causes of stock losses, management and treatment. Particularly reference is made to the transport of cattle along the Queensland coast and between northern Australia and the south-west Pacific countries.—W. E. LAWRENCE.

WILLIAMS, K. [Edited by.] (1959). *Production Yearbook, 1958. Vol. 12.* pp. 475. Rome: Food & Agriculture Organization of United Nations, 22s. 6d. 4018

This yearbook includes statistics for individual nations and the world on the livestock population and on the production of meat, milk, hides and skins, eggs, and other products of animals. There is also a comparison of prices of livestock and animal products in selected countries.—R.M.

DAVENPORT, N. & NEIL, G. H. (1959). Hexoestrol implants with yearling steers.—*J. Dep. Agric. W. Aust.* **8**, 211-214. 4019

Twenty Shorthorn x Aberdeen Angus steers, 12-16 months old and averaging 583 lb. in weight, were divided into 2 groups. One group was implanted with 60 mg. hexoestrol and run on improved good pasture for 96 days. The treated group gained 2.75 lb./head/day and the control group 2.05 lb./head/day. The treated group averaged 67 lb. live weight and 34 lb. carcass weight heavier than the controls. The carcasses of the treated were less finished than those of the control group.

—T. J. GRAINGER.

BECK, P. & GARSTONE, P. (1959). Round farrowing house reduces piglet losses.—*J. Dep. Agric. W. Aust.* **8**, 201-204 & 207-209. 4020

The design and construction are given of round farrowing pens, based on the original Ruakura design [*V.B.* **25**, 3880]. When tested at Muresk Agricultural College and Denmark Research Station, W. Australia, piglet losses were reduced to one-eighth of previous mortalities.—A. CULEY.

REPORTS

SOUTH AUSTRALIA. (1958). **Nineteenth Annual Report of the Council of the Institute of Medical and Veterinary Science, July 1956-June 1957.** pp. 79. Adelaide: K. M. Stevenson, Govt. Printer. [Items of veterinary interest pp. 56-69.] **4021**

An outbreak of disease among guinea-pigs was due to *Pasteurella pseudotuberculosis*, and was eradicated by the use of a slide agglutination test.

OVINE BRUCELLOSIS can be transmitted to clean rams grazing with infected rams, but not by grazing pastures previously grazed by the infected animals. The infection spread more rapidly from ram to ram during mating than by direct transmission in the absence of ewes. A clean flock was maintained on a property on which infected sheep were also kept. The clean flock had first use of yards and sheds and had no contact with the infected flock. In the flock used to study the epidemiology clean South-down rams and infected Suffolk rams were used. The infected rams produced fewer progeny but were not necessarily infertile. Some properties have many infected rams but lambing figures are satisfactory, while on others infected rams are few but lambing figures are poor and there are abortions and dead lambs. Studies on eradication are based on slaughter of all rams and ewes which react to the complement-fixation test. To determine the minimum amount of blood testing required, 12 flocks are under observation. Within them testing is of two main types; rams before and after mating and ewes before mating, or only the rams are tested. In a previous report it was stated that the rough nature of *Br. abortus* prevented the preparation of stable suspensions. Subsequent work showed that relatively stable suspensions can be prepared in dilute sodium hyroxide (N/250 NaOH, of pH 11.0). Ten strains of *Br. ovis* obtained from South Australia, Queensland and New Zealand proved antigenically identical. There did not appear to be an antigenic relationship between *Br. ovis* and the smooth strain of *Br. abortus* but cross agglutination occurred between *Br. ovis* and the rough strain of *Br. abortus*.

Pleuropneumonia-like organisms were isolated from the majority of cases of CHRONIC RESPIRATORY DISEASE in poultry, especially where sinusitis or air sac disease was present. Local strains were poor antigens. A method is described for growing the organisms in cul-

ture. A minor growth factor may be related to poor antigenicity.

The virus of INFECTIOUS LARYNGO-TRACHEITIS was grown in tissue culture of lungs from 12-day chick embryos in a mixture of horse serum and Hank's solution. The growth curve suggests that the virus is absorbed by and multiplies in cells immediately they are taken from the embryo, but as the cells age in tissue culture, they become progressively less able to support virus growth. The first decline in virus content represents a lag phase, with a superimposed thermal death rate. As the cells age, to an extent when they no longer support virus growth before the second generation virus is available, the growth curve represents a single step of multiplication. The plateau following the log. phase probably represents either late maturation of some virus-producing cells or actual multiplication of infected cells, with subsequent release of virus from their progeny. Cytopathogenic effects were seen as nuclear changes—probably the typical intranuclear inclusion bodies of I.L.T. The virus maintained its virulence for the chick embryo over 40 passages, but after 13 passages it produced only a non-fatal haemorrhagic tracheitis in fowls, and after 40 passages only a chronic type of disease with slight haemorrhages. A vaccine prepared from local strains of low virulence has been used successfully.

PNEUMONIA is widespread in pigs in South Australia and causes considerable economic loss. Attempts are being made to grow a virus in tissue culture.

Epidemiology trials have begun on HELMINTHOSIS in cattle brought from the low rainfall areas for fattening in the higher rainfall regions. Cattle of 12 to 18 months and 2 to 4 years old fattened satisfactorily without evidence of helminthosis, and it appears that they had experienced sufficient infestation in their early life, even in the drier country, to have acquired a measure of resistance. On arrival from the drier country the cattle harboured light infestations with *Trichostrongylus* spp., *Ostertagia* spp., *Haemonchus placei*, *Cooperia oncophora*, *C. punctata*/C. *pectinata* group, *Bosicola radiatum*, *Bunostomum phlebotomum* and *Trichuris* spp. Helminthosis appears to be important in young dairy cattle in the Adelaide Hills district. *Nematodirus* spp. were present as well as most of the species listed above. *Fasciola hepatica*

was found in calves four months old. Examination of gastro-intestinal tracts from calves 4 to 8 weeks old revealed remarkably few parasites.

Four years of epidemiological studies on the helminth parasites of sheep in South-Eastern S.A. showed that parasitic disease was insignificant with the exception of sporadic outbreaks of haemonchosis, which appear to be unpredictable and are not regular enough to warrant a routine control programme. Anthelmintic treatment had little effect on live weight at one year old and there was no benefit to wool production. Peak worm egg counts were reached in spring, with decline to low levels in autumn. Sheep on natural pastures had a small secondary peak in summer. *Trichostrongylus* spp. predominated, with lesser numbers of *Ostertagia* spp. and *Chabertia ovina*. It appeared that egg counts of 2,000 *Trichostrongylus* spp. eggs per g. were consistent with normal growth of lambs. Lambs on abundant grazing were in better condition than those on restricted grazing, despite much higher worm egg counts, chiefly of *Trichostrongylus* spp. and *Ostertagia* spp. Dose rates of phenothiazine in S.A. appear to be too small considering the size of the sheep and the susceptibility of the common species. A nomogram was prepared for calculating the dose [V.B. 28, 898].

A study of the relation of mineral imbalance and bovine INFERTILITY has begun. Estimations are made of the content of calcium, phosphorus and magnesium in the blood, and of the same minerals, with cobalt, copper, manganese and molybdenum in pasture and fodder. There was no evidence of phosphorus deficiency in the early observations.

Mortality in sheep followed feeding on Wild Geranium (botanical name not given) which contained large amounts of oxalate. A pasteurella was isolated from encephalitis in a ram. Large numbers of spargana (probably of *Spirometra*) were found in the muscles of feral pigs. Plagues of simuliid sandflies caused worry to horses and cattle in the Mt. Barker and Adelaide districts after heavy winter and spring rains.

Other items of veterinary interest included serological examinations of Aborigines for the presence of HYDATID DISEASE, and the occurrence of antibodies of Q FEVER in employees at the abattoirs, in kangaroos, and among Aborigines.—H. MCL. GORDON.

EAST AFRICA HIGH COMMISSION. (1958). *East African Veterinary Research Organization annual report 1956-57*. pp. 74. Nairobi: Government Printer. Sh. 5. 4022

During July 1956 to December 1957 more scientific information was published in scientific journals and consequently there is less in the body of the report. Reorganization has resulted in transfer to E.A.V.R.O. of all research on animals breeding, physiology and metabolism and of the transfer to the E.A. Agricultural and Fisheries Research Organization of research on animal nutrition including studies of the nutritive value of fodders. New laboratories and ancillary buildings were officially opened at Muguga in February 1957.

The Division of Virus Diseases was mostly concerned with RINDERPEST. Strains of the virus were adapted to hamsters and mice. In hamsters the infection remained inapparent. Rinderpest neutralizing antibody was shown to be transferred from the immune dam to her calf in the colostrum. The serum titre declined steadily after birth and disappeared at about 11 months of age. Calves over 8 months old could be successfully immunized, but below 4 months of age they could not. The agar double diffusion precipitation test was developed for rinderpest diagnosis, and has been used in wildebeest and other game. Growth and serial passage of Kabete O virulent virus in bovine, sheep, pig and hamster kidney cells and in bovine and sheep testes cells has been demonstrated.

Division of Bacterial Diseases. An agar double diffusion precipitation test for post-mortem laboratory confirmation of bovine pleuropneumonia was developed.

Division of Protozoal and Arthropod-Borne Diseases. Strains of *Theileria parva* and *Th. lawrencei* were studied and earlier work on the therapeutic use of aureomycin during immunization was developed.

Observations in an enzootic East Coast fever area suggested that of a total calf mortality of 13.7% only 3.7% was attributable to the specific disease. There appeared to be gradual loss of resistance to re-infection with *Th. parva* over about 3 years but at the end of that time half the animals were still completely immune. Apparently there were strains of varying virulence but of 4 strains of *Th. parva* tested none showed immunological differences. Buffaloes harboured scanty infections of *Th. mutans* type not transmissible by tick passage to cattle. One young buffalo was infected experimentally with *Th. parva*. There was a

mild reaction and recovery followed. *Th. lawrencei* was isolated from *Rhipicephalus appendiculatus* and from a healthy buffalo. Differences between *Th. parva* and *Th. lawrencei* were extensively investigated: there appeared to be no firm basis for separating the two parasites. With *Th. lawrencei* infection however, there is a virtual absence of piroplasms in the r.b.c. of cattle, and infected cattle were not usually infective to ticks.

Division of Helminth Diseases. The presence of *F. hepatica* in Kenya has been confirmed and the vector identified as *Limnaea mweruensis* (probably closely related to *L. truncatula*). In the laboratory the young snails could be infected also with *F. gigantica*.

There was a high incidence of bovine CYSTICERCOSIS in Kenya and evidence of unusual resistance to infection in young zebu calves. Colostral antibodies may influence infection.

There are reports also from the Pathology and Animal Production Divisions.

—S. BRIAN KENDALL.

NYASALAND. (1957). **Annual Report, 1957.**

Department of Veterinary Services and Animal Industry, Nyasaland. pp. 51. Zomba: Govt. Printer. 4023

EAST COAST FEVER was still the most important tick-borne disease. 13.7% of all deaths of cattle reported in the Central Province were due to this disease. In the Northern Province cases increased except in the "Dipped area".

Many outbreaks of HEARTWATER occurred and there were heavy losses in sheep flocks. Sulphadimidine therapy was successful in early cases in both cattle and sheep.

PIROPLASMOSIS is endemic. The cerebral form occurred mainly in the Southern Province. There were not many cases.

The Colonial Development and Welfare Fund has provided means for the extension of dipping facilities. 43 steel tanks in sections were delivered.

Tsetse fly and TRYPANOSOMIASIS. *Glossina brevipalpis* occurs in Karonga district and 131 cases of *Trypanosoma vivax* infection were diagnosed. 1,100 doses of dimidium bromide were given in the Karonga Lake shore area. Prophylactic doses of antrycide were given before inoculation of cattle with Foot and Mouth Disease virus. In the Northern Provinces the recession of tsetse fly (*G. morsitans*) appears to have been maintained (only 13 cases of infection were diagnosed).

An outbreak of FOOT AND MOUTH DISEASE occurred in Karonga among cattle watering in the Songwe river where infected herds from Tanganyika were also using the river. The disease was caused by Strain "O" virus (diagnosed at Pirbright) which has not previously been recorded so far south in Africa.

In the BLACKLEG endemic area 5,238 cattle were vaccinated. Only three cases were diagnosed. The disease has not been diagnosed elsewhere in Nyasaland.

Clostridium welchii Type D infection was reported from two areas, causing deaths among sheep.

There were 30 cases of TUBERCULOSIS in slaughter animals from the Northern Province. Tuberculin tests in 12 herds of the Southern Province revealed no positive reactors. "Non-specific reactors were found in five herds". Tests at Mbawa in the Northern Province "showed a number of reactors" (no figures given) among oxen.

Although only 53 cases of RABIES were confirmed, there is no evidence of the disease being less prevalent. A new outbreak occurred in Karonga, where 250 dogs were vaccinated and about 600 destroyed but the areas affected remain infected. Vaccination of dogs in townships is compulsory prior to licensing.

LUMPY SKIN DISEASE occurred among cattle imported from South Africa while in quarantine, but did not spread.

BRUCELLOSIS was diagnosed in the Southern Province. Protective inoculation of Strain 19 culture vaccine was used.

VIRUS PNEUMONIA occurred in penned pigs. NEWCASTLE DISEASE is endemic. Commercial flocks are protected by half-yearly vaccination. "Every other common disease of poultry" was diagnosed at the field laboratories or at the Blantyre Headquarters Laboratory.

—J. A. GRIFFITHS.

TANGANYIKA. (1958). **Annual report of the veterinary department for the year ending 31st December, 1957.** Vol. I. [ROE, J. E. R.] pp. 42. Dar es Salaam: Govt. Printer. Shs 5/50. 4024

RINDERPEST appeared again, initially affecting young wildebeest and buffalo. The disease occurred only among wildebeest and buffalo. All susceptible cattle in the infected areas were immunized; over 1.5 million cattle were treated. As the spread of the disease was feared, immunizations were carried out among susceptible young cattle in Western, Central and Tanga Provinces, a total of 242,679 head.

The severe results of tail tip injections of cattle with a more virulent BOVINE CONTAGIOUS PLEUROPNEUMONIA vaccine, followed by the appearance of the disease among cattle hitherto free from the disease, raised opposition among the Masai cattle owners. The use of the milder vaccine was resumed, as this, under field conditions, had been found satisfactory. 60,000 cattle were treated in March and by July the situation had improved. All cattle were treated in August and by the end of the year deaths had ceased. The adverse effect of the restrictions on marketing of livestock remains. "The only source of income for these people and the Government, both local and central, is by the sale of these cattle".

EAST COAST FEVER is the most serious of the indigenous diseases in large areas. Mortality varied from sporadic cases to epizootics. Dipping tanks are used and more are being provided. Spraying is also practised under special conditions. ANAPLASMOSIS is common in grade and pure-bred cattle. PIROPLASMOSIS occurs frequently in conjunction with E.C.F. or trypanosomiasis and also among grade and pure-bred exotic breeds.

Some deaths from RICKETTSIOSIS occurred at Ituba, where 90 cattle died in 1956. BHC-resistant ticks have been identified in the Arusha, Moshi, and Dar-es-Salaam areas. All Provinces had outbreaks of FOOT AND MOUTH DISEASE. The types of virus in 15 specimens were six "O" and seven "A". No S.A.T. types were encountered. There were three outbreaks of RABIES. The measures taken are: all dogs to be kept tied up and immunized or destroyed. 17,155 dogs were destroyed and 4,579 immunized. In the Southern Highlands Province one child bitten by a rabid dog died.

Sporadic outbreaks of ANTHRAX occurred. Trade cattle are immunized. Prophylactic vaccination is not popular. A number of people became infected and some died. BLACKLEG is widespread. African authorities are heeding veterinary advice and providing more money for vaccine.

TRYPANOSOMIASIS is of major importance. Use of curative and prophylactic drugs con-

tinues to gain popularity. Brush clearing is being extended.

TUBERCULOSIS: The percentage of condemnations in cattle slaughtered for TB. was:—Iringa 11.6, Njombe 20.1, Kibena 18.5, Mbeya 15.8. Most of these cattle come from Ubungu. Nowhere else in Tanganyika have comparable figures been recorded and it is puzzling why they persist. JOHNE'S DISEASE was confirmed for the second time; subsequently seven further cases were confirmed. BRUCELLOSIS was diagnosed in dairy herds in the Northern Province and the Iringa district. The medical department states there is an increasing number of cases in man with high blood titre reactions to *Br. abortus*. Strain 19 vaccine has been used whenever indicated.

CONTAGIOUS EPIDIDYMITIS AND VAGINITIS occurs in the dairy herds in the Northern Province and Dar-es-Salaam.

TRICHOMONIASIS was the main cause of infertility in the Arusha District.

Two cases of VIBRIOSIS were diagnosed but it is suspected the disease is wider spread than has been recorded.

There was an increased incidence of EPHEMERAL FEVER (Three-day sickness) in the Moshi and Iringa districts affecting both zebu and exotic breeds. 50 sheep died from RIFT VALLEY FEVER and 15 cows aborted on one farm. A few cases of BOVINE MALIGNANT CATARRH were seen in the Northern Province. CALF PARATYPHOID occurs in association with defective hygiene. HAEMORRHAGIC SEPTICAEMIA was widespread in the Northern Province among cattle, sheep and goats. Vaccination has prevented losses.

Dictyocaulus viviparus was recorded, it is believed for the first time. CYSTICERCOSIS and FASCIOLIASIS are widespread. *Oestrus ovis* and *Haemonchus contortus* occur in domestic and wild ruminants. *Dirofilaria immitis* has been diagnosed in dogs.

MINERAL IMBALANCE AND DEFICIENCIES occur in the Iringa and Bukoba Districts. "The feeding of a supplement containing phosphorus, copper and cobalt increases growth rate of young animals and reduces dry season losses in weight of adults".—J. A. GRIFFITHS.

BOOK REVIEWS

ANON. (1958). **International Code of Nomenclature of Bacteria and Viruses. Bacteriological Code.** pp. xxii + 186. Ames: Iowa State College Press. \$3.50. 4025

This book, edited by the Editorial Board

of the International Committee on Bacteriological Nomenclature and published by The Judicial Commission, International Committee on Bacteriological Nomenclature of the International Association of Microbiological

Societies, deals with the Bacteriological Code (which "applies to bacteria, related organisms and the viruses"): taxonomy of the viruses was being considered by a special Subcommittee whose proposals had not apparently been formulated. It is pointed out that the Bacteriological Code represents a high degree of international co-operation; its history from 1930 onwards and the Recommendations of the six International Congresses for Microbiology are set out in a Foreword.

The four main chapters deal with: General considerations; Principles; Rules and Recommendations; and Provisions for modification and amendment of Rules and for an International Committee. Four appendices deal with Transliteration of Greek words into Latin form; Recommendations relative to choice of spelling; Opinions relating to nomenclature of the bacteria and viruses; and Lists of conserved and rejected names. Where the Bacteriological Code differs from the Botanical or Zoological Codes the differences are pointed out, with quotations from these other Codes. There is a good index. The publication of this authoritative work should help to clear up existing confusion and to stabilize bacteriological nomenclature. Texts of the Code in the various other important languages of science are to be prepared and may probably be included in future editions.—F.E.W.

ZEISSLER, J., KRAUSPE, C. & RASSFELD-STERNBERG, L. (1958). *Die Gasödemie des Menschen*. Band I. Geschichte, Beziehungen zur Veterinärmedizin, Bakteriologie und allgemeine Pathologie. Band III. Atlas der Gasödemie. [Clostridial infections of human beings. Vol. I. Histology, veterinary importance, bacteriology and general pathology. Vol. III. Atlas.] pp. xii + 287 & pp. xi + 109. Darmstadt: Dr. Dietrich Steinkopff Verlag. DM 46 & DM 40. 4026

This book embodies the authors' extensive war-time experience of clostridial wound infections in man. Its veterinary interest lies in the detailed treatment of the bacteriology of clostridia. The atlas (volume 3) is a collection of 277 photographs, many in colour, demonstrating the morphology of each species of bacterium and the lesions of experimental infections in lab. animals. Discussion of the veterinary importance of clostridia in volume 1 is of little value to veterinary surgeons. Volume 2 is not yet published: it is devoted to general and special pathology of human infec-

tions, histology, pathogenesis, diagnosis and therapy; it also contains the bibliography and index to volumes 1-3.—R.M.

COCHRANE, V. W. (1958). *Physiology of fungi*. pp. xiii + 524. New York: John Wiley & Sons, Inc. London: Chapman & Hall, Ltd. 78s. 4027

A broad survey of metabolism, nutritional requirements, growth, reproduction (excluding genetics) and sensitivity to chemical and physical agents of filamentous fungi and actinomycetes. The author is concerned with the general principles of fungal physiology and does not place emphasis on fungal toxins, or fungi pathogenic for animals.—R.M.

YAMAGUTI, S. (1958). *Systema helminthum*. Vol. I. The digenetic trematodes of vertebrates. Parts I & II. pp. x + 1575. New York (& London): Interscience Publishers. £34. 4028

The admiration of all helminthologists will be evoked by the immense amount of work undertaken by Professor Yamaguti on the compilation of his *Systema Helminthum*. When completed, it will provide generic descriptions of all, except the most recently described, trematodes, cestodes and nematodes of vertebrates. Volumes II (Cestodes) and III (Nematodes) are in preparation.

This first volume dealing with the digenetic trematodes, consists of two separate parts. Part I is devoted to the classification of the Digenea with notes on life histories and geographical distribution. The digenetic trematodes of Fishes, Amphibia, Reptiles, Birds and Mammals are arranged in separate sections. Each section consists essentially of a series of keys and descriptions, starting with the Order Digenea and terminating with the generic description which is followed by a list of species and their hosts. The incorporation of page numbers would have made the keys much easier to follow.

Part II consists of a systematic survey of the digenea of vertebrates and their host relationships, an extensive bibliography and some 106 plates incorporating 1,302 figures, many of which are original. It is most gratifying to see so many figures for they can be of great practical help in the identification of specimens. Unfortunately some have been excessively reduced and much detail lost.

So much information, which hitherto has been widely scattered throughout the literature, is incorporated in this volume, that it will

undoubtedly prove an invaluable source of reference to all who are interested in the digenetic trematodes. It is to be regretted, therefore, that the high price will put it out of reach of most individuals. [However the "subscription" price of Volume I is £28 to those who order the complete work in advance.]—J. ROSE.

FERRANDO, R. (1959). *Précis d'alimentation du poulet—du poussin à la poule pondeuse. [Nutrition of fowls—from the chick to the laying hen.]* pp. 115. Paris: Vigot Frères. 2nd Edit. revised & enlarged. Fr. 800. 4029

A book for poultry keepers, dealing with the anatomy and physiology of the digestive system of fowls, nutritional requirements of laying hens, effect of various foods on egg and meat quality and the role of hormones, antibiotics and detergents in poultry nutrition.

—E.G.

ANON. (1959). *Livestock diseases and the organisation of veterinary services in Europe.* pp. 117. Paris: The European Productivity Agency of the Organisation for European Economic Co-operation. Project No. 205. 4030

This cyclostyled publication according to the preface is designed to bring up to date the factual position on "The control of livestock diseases in European countries".

Six pages of "Summary and recommendations" deal with bovine tuberculosis, brucellosis, mastitis, foot and mouth disease, swine fever, Newcastle disease, parasitic diseases, nutritional diseases, training of veterinary surgeons, research, advisory services, biological preparations, and international co-operation.

Seventeen pages then recapitulate the time-honoured measures used for control of the major infective diseases of livestock. The greater part (74 pp.) outlines veterinary affairs in the 16 member countries of O.E.E.C., giving for example the numbers of veterinarians, organization of official services, veterinary schools etc. in each country.

An annexe of nine pages tabulates the prevalence of the more important diseases in cattle, pigs, horses etc. in each of the member countries. This could have been a really useful compilation but for the numerous inaccuracies.

Some examples of these are:—In the U.K. glanders in horses is listed as "of considerable importance" whereas in fact no case of glanders has occurred in the U.K. since 1922.

The only country in Europe, according to the tables, where Johne's disease is of any importance in cattle is the U.K. Apparently it does not occur in Greece, Italy, Portugal and Turkey while in France and Germany it is "not important; occasional cases only"; in sheep it apparently occurs only in Austria, Norway and the U.K. "Clavelle" [sheep-pox?] is listed as occurring occasionally in the U.K. Dog distemper does not occur in Greece, Italy, Luxembourg, Portugal or Switzerland, and neither fowl pest nor grass tetany of cattle occurs in the U.K. These mistakes (the list could be extended) make it difficult to place any reliance on the tables.

NEGHERBON, W. O. (1959). *Handbook of toxicology. Volume III: Insecticides. A compendium.* pp. 854. Philadelphia (& London): W. B. Saunders Company. 98s. 4031

GORDON, M., McCANDLESS, R. F. J. & LIPSMAN, S. W. [Compiled by.] GREBE, R. M. [Edited by.] (1959). *Handbook of toxicology. Volume IV: Tranquilizers.* pp. 120. Philadelphia (& London): W. B. Saunders Company. 28s. 4032

DAVIS, E. F., TUMA, B. L. & LEE, L. C. [Compiled by.] DITTMER, D. S. [Edited by.] (1959). *Handbook of toxicology. Volume V: Fungicides.* pp. 242. Philadelphia (& London): W. B. Saunders Company. 38s. 6d. 4033

This Handbook has been prepared under the direction of the committee of the Handbook of Biological Data [V.B. 27, 1949], which is a joint committee of the U.S. National Academy of Sciences and the National Research Council. Volume I and II dealt with acute toxicities of solids, liquids and gases to laboratory animals, and antibiotics (both edited by W. S. Spector). The three volumes under review present a large mass of data on insecticides, fungicides and tranquillizers, never before assembled in one work.

Volume III is the largest (4.5 cm. thick) and contains 188 monographs on insecticides, with 3,400 references to the literature. Even so, coverage of veterinary literature appears to be far from complete. Examples of omissions are: toxicity of aldrin to turkeys (R. W. Anderson *et al.*, 1954); acute toxicity of chlordane to sheep (D. W. Jolly, 1954); toxicity of chlordane to turkeys (E. N. Moore & R. D. Carter, 1954); toxicity of malathion and chlorthion to dogs and cats (R. R. Bell *et al.*, 1955). The volume seems to have been completed at the end of 1956, for there is no men-

tion of Dow ET-57 (Trolene) or Bayer 21/199 ("Asuntol").

Volume IV is much smaller since it has only 26 tranquillizers to deal with. It is confined to toxicity for man and lab. animals.

In volume V there are monographs on 196 substances applied as fungicides to plants, animals or inanimate objects. Among the animals only man and laboratory animals have been chosen for consideration, although literature exists on toxicity for farm animals of such substances as copper preparations, mercury compounds, tetramethylthiuram disulphide, phenothiazine, sodium fluoride or pentachlorophenol.

The three volumes are neatly produced by photo-offset lithography and have paper covers. The subject indexes are good but it is confusing to find that in volume III numbers cited are monograph numbers while in volumes IV and V page numbers are used. Volume III (Insecticides) may be recommended as a handy reference book for veterinary laboratories.

—R.M.

ECKSTEIN, P. [Edited by.] (1959). **Implantation of ova. Proceedings of a conference held at the Ciba Foundation, London, W.1. on 27 November 1957.** pp. vii + 97. Cambridge: University Press. [Memoirs of the Society for Endocrinology No. 6.] 30s. 4034

At this conference, under the chairmanship of Dr. S. Zuckerman, the following papers were read.

A survey of the physiology of ovum implantation in mammals (P. Eckstein, M. C. Shelesnyak & E. C. Amoroso); Induction of pseudopregnancy and deciduomata in the rat by hypertonic solutions (A. Psychoyos); Delayed implantation in the badger (*Meles meles* L.) (R. J. Harrison & E. G. Neal); Glycogen in early human implantation sites (J. D. Boyd); Biochemical approach to the study of ovum implantation in the rabbit (C. Lutwak-Mann); The attachment cone of the guinea-pig blastocyst as observed under time-lapse phase-contrast cinematography (E. C. Amoroso); Substances which inhibit pregnancy and the action of steroid hormones (J. M. Robson); The spacing of implantations in the mouse uterus (A. McLaren & D. Michie); Recent studies on hormonal control of delayed implantation and superimplantation in the rat (G. Mayer); Histamine and the nidation of the ovum (M. C. Shelesnyak). Except for the three visitors, Professor Mayer and Doctor Psychoyos (France) and Doctor Shelesnyak

(Israel) all these are working in Gt. Britain.

Implantation occurring in the badger was shown to be delayed naturally from 2–9 months although with the presumed stress of captivity this period could be increased up to 15 months. Other stresses causing delayed implantation were quoted for the rat. Thought was also given to the mechanism by which the hypothalamus could influence the adeno-hypophysis in cases of non-specific stress and hence disturb the uterine environment. It was also shown that the free blastocyst was capable of viable but inanimate existence for long periods without gonadal or adrenal hormones. However some hormonal influence, particularly of progesterone and oestrogen, was required if implantation was to occur.

Purely mechanical factors would appear to be responsible for the distribution of the nidation sites in animals producing large litters, but many other factors were shown to be involved in the process of implantation. The appearance of cytoplasmic processes penetrating the otherwise tough zona pellucida were described in several animals (guinea-pig, cat, squirrel, monkey) and it was suggested that they might actively orientate the blastocyst. The rabbit blastocyst was shown to possess a high water and bicarbonate content at the time of implantation and the possible connexion with the high content of carbonic anhydrase and some of the vitamin B complex found in the uterine mucosa in the mid-luteal phase was discussed. The accumulation of glycogen in large molecular groups in the endometrial glands at the site of erosion by the blastocyst was described in man, and its possible function as a nutrient material suggested.

Just prior to implantation the numbers of polymorphonuclear leucocytes and eosinophiles were shown to be increasing in a variety of animals and the possible effect of histamine on implantation was discussed at length.

Pharmacological means of terminating pregnancy were also described with the warnings of possible malformations of the foetus rather than death.

The symposium covered wide ground, but in exposing the vast gaps still remaining in our knowledge of this subject has suggested paths for much future research.

—JOYCE E. HAMMANT.

DERBAL, Z. (1959). **Précis d'aviculture tropicale. [Poultry and rabbit breeding in the Tropics.]** pp. 200. Paris: Vigot Frères. Fr. 1700. 4035

This précis consists of two parts, one

occupying about five-sixths of the subject matter, dealing with the selection of suitable poultry breeds, feeding, housing, breeding and general management under tropical conditions. There are also some chapters on the management and breeding of turkeys, ducks, geese, pigeons and rabbits. Part two is a concise description of nutritional, neoplastic, bacterial, virus, parasitic, etc. diseases of poultry, pigeons, rabbits and ostriches. There is an appendix on post-mortem technique and preparation and dispatch of samples and how to obtain vaccines. There are lists of selected French journals and textbooks of interest to breeders.—E.G.

BLANCHARD, J. R. & OSTVOLD, H. (1958). *Literature of agricultural research*. pp. x+231. Berkeley (& Los Angeles): University of California Press. London: Cambridge University Press. 37s. 6d. **4036**

This is the first of a series of guides to bibliography, with emphasis on American publications, sponsored by the University of California. It deals separately with each of the agricultural sciences and lists the main bibliographies, abstract journals, dictionaries, indexes etc. The section on veterinary medicine covers 8 pages and deals well with abstracting journals, except that the *Review of Medical and Veterinary Mycology* could have been included. The lists of bibliographies are inadequate and need drastic revision and under the heading 'Encyclopedias and Handbooks' there is not one that is of current importance. This book is a good guide to what a librarian should know about agricultural literature.

—R.M.

VICKERY, B. C. (1958). *Classification and indexing in science*. pp. xvii+185. London: Butterworths Scientific Publications. New York: Academic Press, Inc. 25s. **4037**

Three means are available for indexing scientific information, alphabetical indexing, classification and mechanical indexes. A large part of indexing is, and will continue to be alphabetical, but classification expressed or implied, forms the basis of all three methods.

The author gives a clear account of modern classification theory, which recognizes the complexity of scientific topics, and analyses their various aspects. Subjects are specified by the combination of appropriate aspects, the relationship between the aspects is shown by symbols, and an order for indexing and

arrangement is obtained by the use of a notation.

This technique, termed facet analysis, is widely used in special libraries and bibliographical information centres, but is more complex than would be required by an individual worker. The basic theory would, however, be of value in suggesting a method for the effective arrangement and indexing of such specialized material as a collection of reprints or literature references.—D. E. GRAY.

RUSSELL, W. M. S. & BURCH, R. L. [Edited by.] (1959). *The principles of humane experimental technique*. pp. xiv+238. London: Methuen & Co. Ltd. 30s. **4038**

This book is in the nature of a reference book in that it collects together a mass of useful information together with nearly 500 accurate references and 18 tables; like other books of this type, it is not easy reading, and the average experimenter will find that he can read only a few sections at a time with concentration and intelligent appreciation. The book marks a milestone in laboratory work in that it lays the foundation of a subject which has not really existed as such, in its own right, before: namely, humane experimental technique.

The authors have read widely and amassed information bearing on the use of a great range of experimental animals, extending from ants and bees through zebra finches to monkeys and man. They have analysed minutely the figures obtained from Home Office returns and from Laboratory Animals Bureau surveys, and thus are able to give a detailed picture of the use of experimental animals in Great Britain.

From this background they expound the three main principles which are the cornerstones of the subject: replacement of animals, reduction of numbers of animals used, and refinement in technique. Finally the authors consider the future progress of humane technique and give a brief account of the various organizations specially interested in the subject: the Laboratory Animals Bureau, the Animal Technicians' Association and the Universities Federation for Animal Welfare. The book was largely stimulated by the last-named, and much of the material was collected and analysed while Russell and Burch were, respectively, UFAW Research Fellow and Research Assistant.

The main criticism of the book concerns the wordiness of the style, and the use of unnecessarily long and obscure words. The average experimenter does not use or readily understand

words such as logistics, ethology, paralogism and to limn, and he may feel that expressions such as "the cuddlier species" are out of place in a scientific book. However, the fact remains that the authors have here collected in one book a great deal of valuable information which could otherwise only be found by lengthy search through numerous journals, many of them in

foreign languages and not easily available. In so doing they have performed a useful service to all who plan and carry out experiments involving animals, and the book provides a sound basis from which future work in this subject can safely grow. It is very well produced, being both accurate and clear in every particular.

—P. G. CROFT.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review]

BURNET, F. M. & STANLEY, W. M. (edited by) (1959). **The viruses: biochemical, biological and biophysical properties. Vol. III. Animal viruses.** pp. xvii+428. New York (& London): Academic Press. 86s.

COLE, H. H. & CUPPS, P. T. (edited by) (1959). **Reproduction in domestic animals. Vol. II.** pp. xi+451. New York (& London): Academic Press. \$13.00.

FRASER, A. (1959). **Beef cattle husbandry.** pp. xii+241. London: Crosby Lockwood & Son, Ltd. 2nd revised edit. 21s.

FRITZSCHE, K. & GERRIETS, E. (1959). Geflügelkrankheiten. Lehrbuch für Tierärzte und Studierende der Veterinärmedizin. [**Diseases of poultry.**] pp. xi+378. Berlin (& Hamburg): Paul Parey. DM 49.

HOSKINS, H. P., LACROIX, J. V. & MAYER, K. (edited by): BONE, J. F. & GOLICK, P. F. (revised by) (1959). **Canine medicine. A text and reference work.** pp. 854. Santa Barbara, California: American Veterinary Publications, Inc. 2nd revised edit. \$18.

KEAST, A., CROCKER, R. L. & CHRISTIAN, C. S. (1959). **Biogeography and ecology in Australia.** pp. 640. The Hague: Dr. W. Junk. Dutch guilders 65. [Monographiae Biologicae Vol. VIII.]

MARTIN, C. R. A. (1959). **Practical food inspection.** pp. vii+656. London: H. K. Lewis, & Co. Ltd., 5th edit. 63s.

NAJJAR, V. A. (Edited by) (1959). **Immunity and virus infection. Symposium held at Vanderbilt University School of Medicine, May 1-2, 1958.** pp. viii+262. New York: John Wiley & Sons, Inc. London: Chapman & Hall Ltd. 84s.

OGINSKY, E. L. & UMBREIT, W. W. (1959). **An introduction to bacterial physiology.** pp. xii+443. San Francisco: W. H. Freeman & Co. London: Bailey Bros. & Swinfen Ltd. 2nd edit. 64s.

SMYTHE, R. H. (1959). **The examination of animals for soundness.** pp. ix+145. London: Crosby Lockwood & Son Ltd. 13s. 6d.

SNOW, C. F. (1959). **Chinchilla breeding.** pp. 85. London: W. & G. Foyle Ltd. 3s.

TROTTER, D. M. & LUMB, J. W. (1958). **McLeod's bovine anatomy.** pp. ii+267. Minneapolis: Burgess Publishing Co. 2nd revised edit. \$5.50..

VOISIN, A. (1959). **Soil, grass and cancer. Health of animals and men is linked to the mineral balance of the soil.** pp. xvii+302. London: Crosby Lockwood & Son Ltd. 30s.

ANON. (1959). **List of veterinary films and films of veterinary interest.** pp. 227. Utrecht: International Veterinary Congress. Permanent Committee. Dutch guilders 5.

AUTHOR INDEX

(The numbers refer to abstracts and not to pages. Where a page number appears after an author's name it refers to an entry in the list of books received)

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ZINC. Dietary Ca and Zn metabolism in pigs, 190; 1505; effect on growth and incidence of perosis in turkeys, 192; deficiency in chicks, 495; 1149; significance for growing chicks, 805; tolerance of pigs to ZnSO₄, 1884; requirements in growing pigs, 2589; effect of weight on Ca, P and Zn balance in pigs, and relationship to Ca, Zn and vitamin D in ration, 2904; requirement studies, 3239.
 See also Parakeratosis; Poisoning, inorganic.
ZOOLOGICAL GARDENS. Survey of births and deaths in the Rotterdam zoo, 2612.
 See also Anaesthesia and Analgesia, general; Circulatory System, vessels; Microsporium Infection; Neoplasms, general; Nutrition, in relation to disease; Schistosoma.
ZOOLOGY. See Books, biology and zoology.
ZOONOSES. See Man, Diseases Of Animals Transmissible To and From.
ZOOTECHNY. Reproduction in pigs fed chlortetracycline, 179; measurement of draught force of horses, 1627; effect of Se on reproduction in pigs, 2936.
 See also Acclimatization and Climate; Blood, composition; Books, diseases, general; reproduction; zootechny; Fertility; Insemination, Artificial; Laboratory Animals; Light; Restraint of Animals; Semen and Spermatozoa; Sterility; Weight, Body; Wool.

ERRATA

- p. 34, abst. 203. For Keymer, L. F. read: Keymer, I. F.
- p. 80, abst. 455, line 2 of abst. For "cyanacethydrazide", read: cyanacethydrazide.
- p. 136, line 2. For "J. Hyg., Camb." read: Amer. J. Hyg.
- p. 185, abst. 1060. The second author's name should read: Tümová, B.
- p. 191, abst. 1093. The joint author's initials are P. H. A.
- p. 206, abst. 1181. The first author's name should read: Doroshko, I. N.
- p. 242, abst. 1373. Lines 2-3 of abst. Instead of "para-amino-phenyl-diazoamino derivative of dimidium chloride", read: meta-amidinophenyldiazoamino derivative of homidium chloride.
- p. 263, abst. 1500. The last author's name should read: Pounden, W. D.
- p. 323, line 7. The word "faecal" should be deleted.
- p. 344, abst. 1974. For "Dermatophilus (Dermatonomus) congo-lensis", read: Dermatophilus dermatonomus.
- p. 365, abst. 2063. The reference given in the abst. should read: [V.B. 29, 361].
- p. 373, abst. 2108. For "Foršek, M. Z." read: Zeljko, M. & Foršek, M. Z.
- p. 409, abst. 2308, line 2 of title. For "aret", read: äret. In last line of abst., for 76 read 46.
- p. 417, abst. 2349, line 1. For "stain" read: strain.
- p. 434. In column 2 line 24, "transmissable" should read: transmissible.
- p. 482, abst. 2721. For Miller, A. C. read: Miller, W. C.
- p. 546, abst. 3064. The second author's name should read: Hoffmann, F.
- p. 553, abst. 3112, line 14 of abst. The words "A haemagglutination test" should be replaced by: An agglutination test.
- p. 586, abst. 3309. Line 1 of abst. should read: "Trials were carried out . . ."
- p. 590, abst. 3330. In line 13 of paragraph 3, instead of 698,600 doses of caprinized vaccine, read: 398,600. In para. 4, line 3, instead of 73,200 doses of avianized vaccine, read: 793,000. In line 15, para 3, read: ". . . doses of lapinized rinderpest virus . . ."
- p. 595, line 18 should read: ". . . the proportion of one acid to another."
- p. 596, abst. 3344 line 2 should read: ". . . has been prominent . . ."
- p. 627, abst. 3500. For "Giles, E. E.", read: Gless, E. E.
- p. 631, abst. 3523, lines 2-3. For "Strongyloides" read: Strongyloides.
- p. 657, abst. 3668, line 4 of title. The volume No. should read: 23.
- p. 664, abst. 3697, lines 2-3 of abst. Instead of "from milk samples (1,314 strains)", read: from milk samples (314 strains).
- p. 710, abst. 4000. The reference given in line 2 should read: [V.B. 29, 573].

